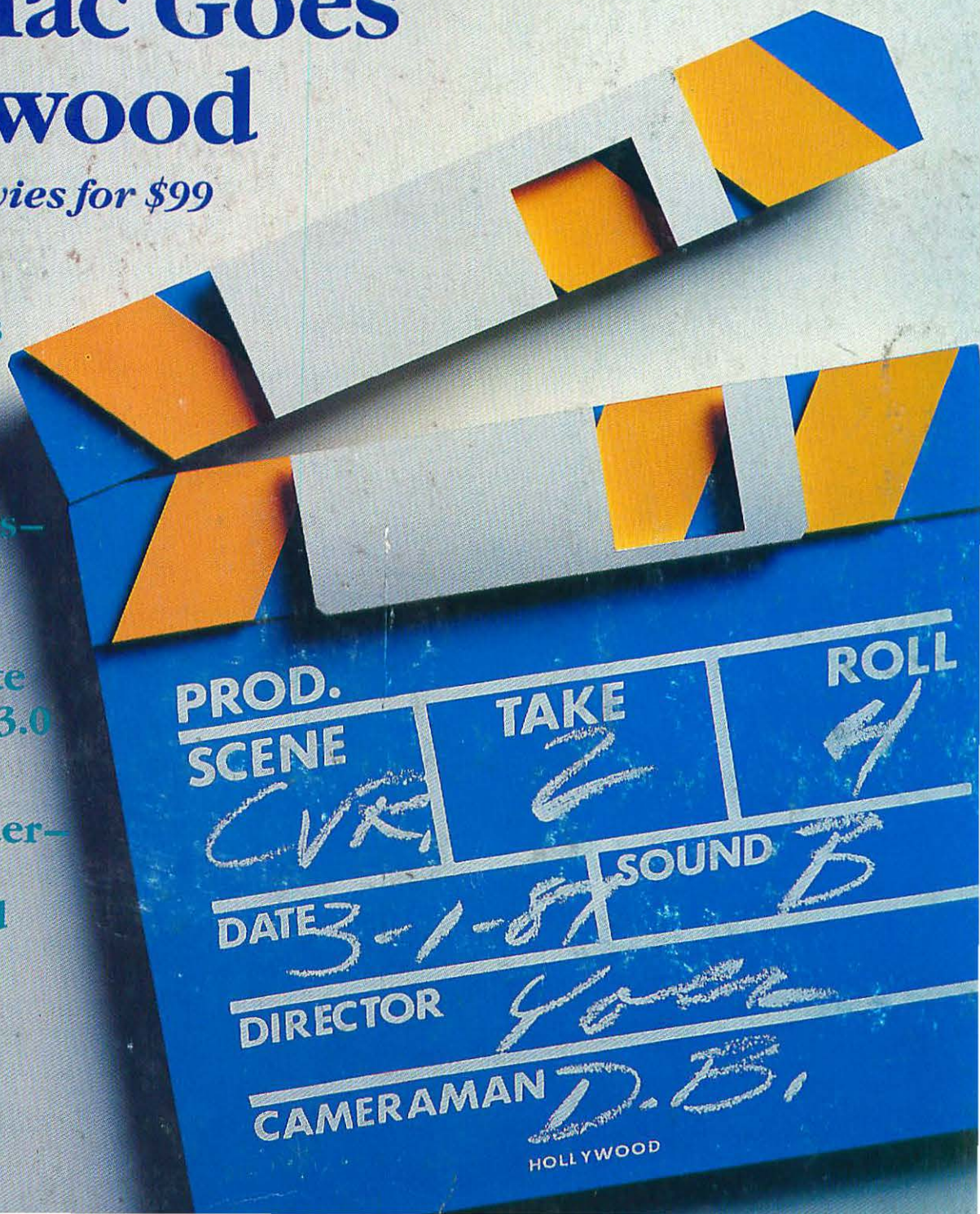
MACWORLD

March 1987 $3.95
Canada $4.95
The Macintosh™ Magazine

The Mac Goes Hollywood

Make Mac Movies for $99

- New! Apple's Network Tool for Business
- How to Capture Images—Step-by-Step Digitizing
- The Complete Guide to Word 3.0
- What to Do about Mail Order—Including an Unprecedented Exposé



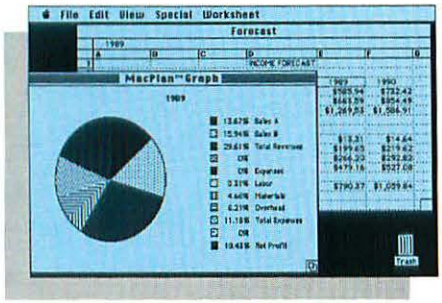
Borland software: technically superior

SideKick®

SideKick: The Desktop Organizer, Release 2.0

Thousands of users already know that SideKick is the most complete and comprehensive collection of desk accessories available.

Well, with Release 2.0, the best just got better. We've just added two powerful high-performance tools to SideKick. We've added Outlook: The Outliner and MacPlan: The Spreadsheet. They work in perfect harmony with each other and while you run other programs!



MacPlan does both spreadsheets and business graphs. Paste them into your Outlook files and generate professional reports.

SideKick: The Desktop Organizer, Release 2.0 now includes

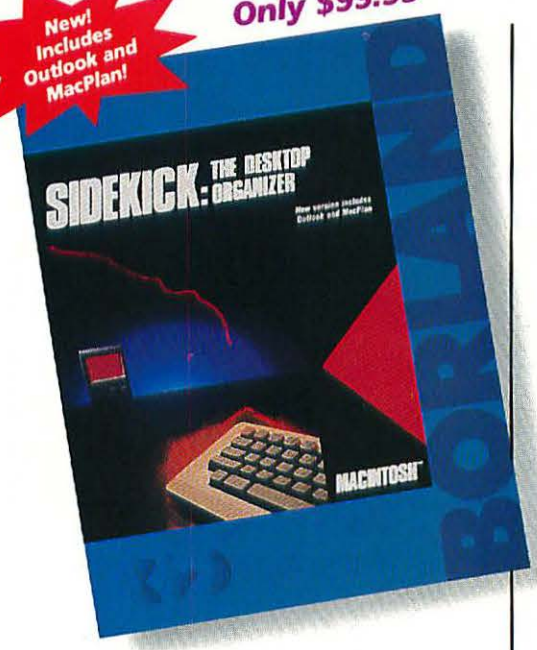
- ☑ Outlook: The Outliner
- ☑ MacPlan: The Spreadsheet
- ☑ Mini word processor
- ☑ Calendar
- ☑ PhoneLog
- ☑ Analog clock
- ☑ Alarm system
- ☑ Calculator
- ☑ Report generator
- ☑ Telecommunications (new version now supports XModem file transfer protocol)

Upgrade Now! *If you are one of the thousands of SideKick users, just send us your original master disk back with a check for $34.95, and we'll rush you a brand new SideKick, Release 2.0, complete with manual.*

**Introductory offer expires July 1, 1987*

New! Includes Outlook and MacPlan!

Only $99.95*



Outlook: The Outliner

- *It's the desk accessory with more power than a stand-alone outliner*
- *A great desktop publishing tool, Outlook lets you incorporate both text and graphics into your outlines*
- *Works hand-in-hand with MacPlan*
- *Allows you to work on several outlines at the same time*

MacPlan: The Spreadsheet

- *Integrates spreadsheets and graphs*
- *Does both formulas and straight numbers*
- *Graph types include bar charts, stacked bar charts, pie charts and line graphs*
- *Includes 12 ready-to-use templates free!*
- *Pastes graphics and data right into Outlook creating professional memos and reports, complete with headers and footers, in a snap*

New Version!

System requirements:
Macintosh 512K or Macintosh Plus with one disk drive.

Reflex®: The Database Manager

Why are so many critics praising Reflex?

Because Reflex is the high-performance relational database manager that every Mac user has been waiting for.

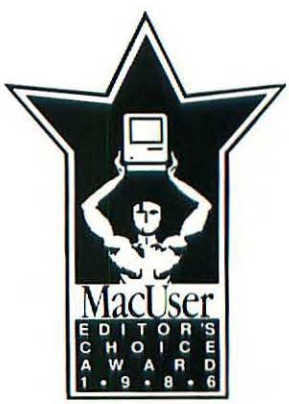
Its simple spreadsheet approach makes calculations a snap.

And creating database designs, forms, and reports is as easy as drawing them on your screen.

Reflex lets you organize, analyze and report information faster than ever before.

Reflex is the full-featured database manager that everyone who manages mailing lists, customer files, budgets and almost any other set of business numbers needs today.

Whatever business you're in, whatever you manage, you need Reflex: The Database Manager.



Reflex: The Database Manager— 1986 MacUser Editor's Choice Award

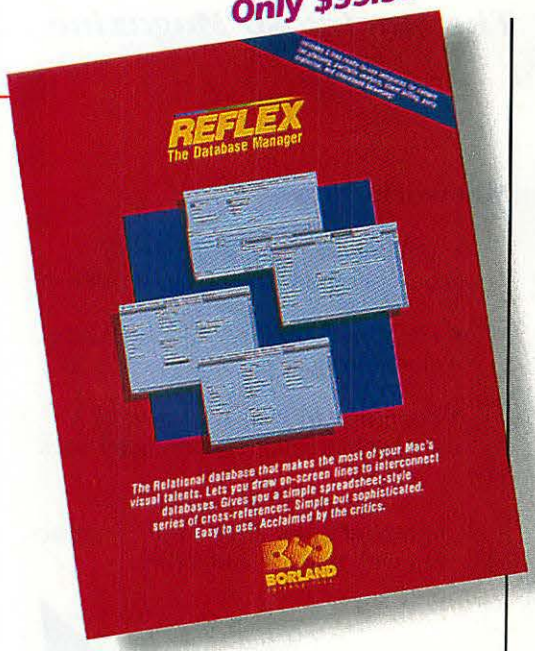
System requirements:
Macintosh 512K or Macintosh Plus with one disk drive. Second external drive recommended.

Reflex, SideKick and Turbo Pascal are registered trademarks of Borland International, Inc. or Borland/Analytica, Inc. Macintosh is a trademark of McIntosh Laboratory, Inc. and is licensed to Apple Computer, Inc. IBM is a registered trademark of International Business Machines Corp.
Copyright 1987 Borland International

BI-1096

Innovative, and easy to use

Only $99.95*



The Critics' Choice

"With 49 arithmetic, text and statistical functions . . . can handle business and engineering calculations that would stump most data managers.
MacWorld

. . . can be used quickly and easily even by someone who has never heard of a relational database. It is a good buy for its quality, not just its price.
MacUser

. . . a powerful relational database . . . uses a visual approach to information management that makes this power easy to manage.
InfoWorld

. . . a combination of power and flexibility that distinguishes it from any other product we've seen.
Esther Dyson, Release 1.0"

What more can we say? If you use a Mac, get Reflex: The Database Manager.

*Introductory offer expires July 1, 1987

Turbo Pascal®

Turbo Pascal: The fastest, most efficient and easy-to-use Pascal compiler!

Compiled source code races from Turbo Pascal at the astonishing rate of more than 12,000 lines per minute. Anything less than Turbo Pascal is an exercise in slow motion. You can expect what only Borland delivers: Quality, Speed, Power and Price.

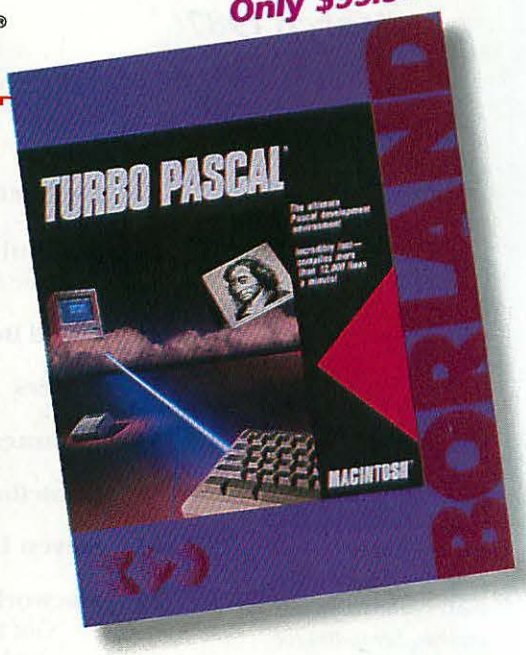
Turbo Pascal at a glance

- ☑ *Compilation speed of greater than 12,000 lines per minute*
- ☑ *"Unit" structure lets you create programs in modular form*
- ☑ *Multiple editing windows—up to 8 at the same time*
- ☑ *Options include compiling to disk or memory, or compile and run*
- ☑ *No need to switch between programs to compile or run a program*
- ☑ *Streamlined development and debugging*
- ☑ *Compatible with Hierarchical File System*
- ☑ *Compatible with Macintosh Programmer's Workshop Pascal (with minor changes)*
- ☑ *Ability to define default volume and folder names used in compiler directives*
- ☑ *Search and Change features in the editor speed up and simplify alteration of routines*
- ☑ *Unlimited use of available Macintosh™ memory*
- ☑ *"Units" included to call all the routines provided by Macintosh Toolbox*

Turbo Pascal: Truly compatible, easy-to-use

Turbo Pascal is compatible with your Mac's Hierarchical File System, Macintosh Programmer's Workshop Pascal, and Inside Macintosh. You're in familiar territory, but going a lot faster.

Only $99.95*



The Critics' Choice

"Turbo Pascal is the true winner in the stand-alone Macintosh development environments . . . Turbo Pascal provides ease of use, extremely fast compilations, excellent documentation, great support and a company that is well known in the industry. To end it off, you get all of this for the paltry price of $99! Now isn't that a reason to get moving with Turbo?
Robert Forras, MacTimes

Turbo Pascal is already an industry standard in the IBM-compatible world and we're very excited to see Borland International's new commitment to provide this and other modestly-priced, high-quality software for the Macintosh computer.
John Sculley, Apple Computer, Inc."

System requirements:
Macintosh 512K or Macintosh Plus with one disk drive. (The complete Turbo Pascal package, including compiler and editor, occupies only 50K of memory.)

*Introductory offer expires July 1, 1987

For the dealer nearest you, or to order by phone
call (800) 255-8008
CA (800) 742-1133
Canada (800) 237-1136

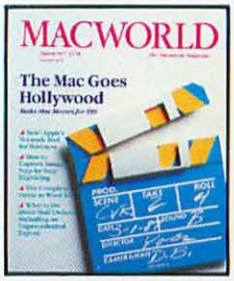
BI-1096

Circle 381 on reader service card

MACWORLD

March 1987

The Macintosh™ Magazine



On the Cover
Beck Tech's MacMovies *makes animation accessible. See p. 104 for our critical reaction. (Photograph by David Bishop.)*

Departments

13 Mac Bulletin
Late-breaking news.

21 David Bunnell

35 Letters

53 Commentary/Jerry Borrell

58 Contributors Notes

63 Steven Levy

81 Macworld Phone Survey
Got any gripes, plaudits, or ideas about the Mac or our magazine? Well, we're listening . . .

162 How To/**Quick Tips**
Macs overseas, Macs on airplanes, envelope printing, and more.

173 How To/**Getting Started with Spooling**
Keep working while your Mac prints.

183 How To/**Insights on Microsoft Word**
New ways to work with *Word.*

191 How To/**Mac Business Tools**
Become a power prognosticator with *Excel* data tables.

198 Updates
Keep up with Mac software upgrades.

213 Where to Buy
Information on products in this issue.

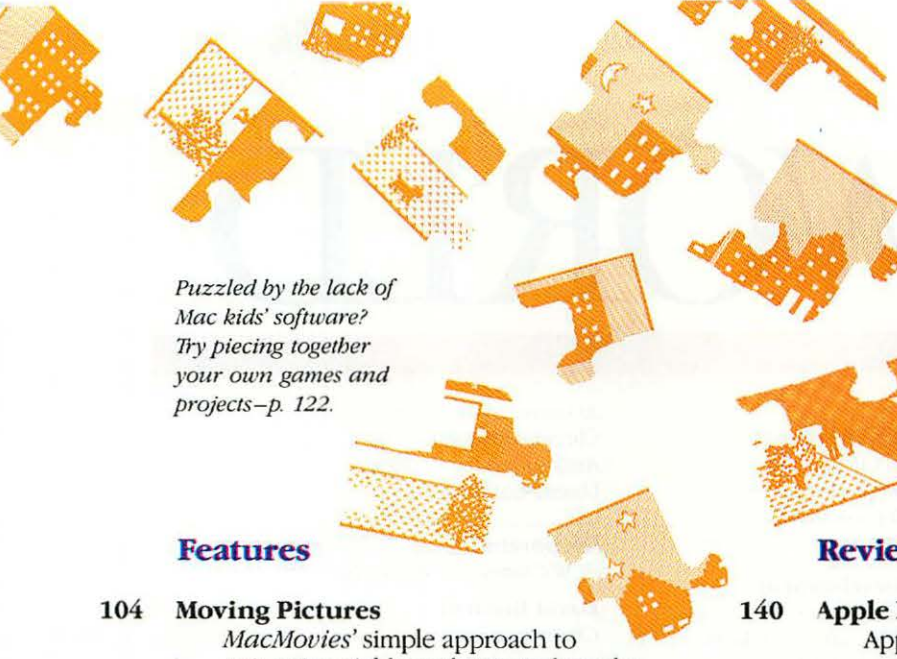
220 Best-Sellers

89 Macworld News

- *Scaling the Great Wall* Apple scouts out the world's biggest market.
- *The World's Fastest PC* The Prodigy 4 clocks in against Compaq's 386.
- *The Surge in Mac Accounting* A flurry of high-end accounting releases.

Plus, reports on *WorksPlus Spell,* new hard disks, *PageMaker* templates, fun with fractals, and more.





Puzzled by the lack of Mac kids' software? Try piecing together your own games and projects–p. 122.



Features

104 Moving Pictures
MacMovies' simple approach to animation yields sophisticated results.

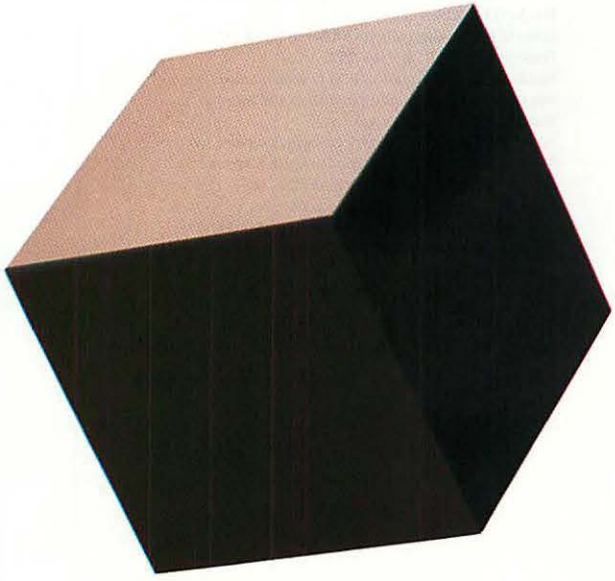
108 AppleShare–Multifaceted Networking
Unique file-sharing features make Apple's network server worth the wait.

116 The Latest Word
This may be the most powerful Mac word processor yet.

122 Kids' Stuff
Create your own children's games and projects–all it takes is *MacPaint* and a little imagination.

126 Navigating the Mail-Order Channel
Is mail order worth the risk? Learn ways to protect yourself against unpleasant surprises.

132 Hands-On Digitizing
Techniques for making digitized images with impact.



Reviews

140 Apple Pulls a Fast One
Apple HD-20SC hard disk.

141 Lose Those IRS Blues
MacInTax tax preparation.

142 A Beautiful Duet
MIDI Mac Sequencer with *Deluxe Music Construction Set.*

143 A Pair of Digitizing Tablets
Macintizer, MacTablet.

144 Taking Your Plus to the Max
One + One and MaxPlus memory upgrades.

145 Below the Mark
SpellCheck low-budget speller.

146 Silicon Castle Magic
Dark Castle arcade adventure.

147 Modern Memories
MacMemories Series clip art.

148 Typing Tutors
Typing Made Easy, Typing Intrigue.

149 A Flowchart Drafting Tool
MacFlow systems design.

150 Measuring Tools
Sizer and Adjacency CAD-like desk accessory for *MacDraw.*

151 English-Teacher-on-a-Disk
MacProof spelling and grammar.

152 Make a Date with CalendarMaker
CalendarMaker calendar construction.

153 Blue-Book Replacement
TimeLink time management.

154 The Cutting Edge
Surgeon medical simulation game.



If your current word processor's starting to feel a bit outdated, check out new Word *version 3.0–p. 183.*

MACWORLD

David Bunnell
Editor-in-Chief

Jacqueline Poitier
Director/Art and Design

J. Kelley Younger
Editorial Director

Karen Wickre
Editorial Administrator

Jerry Borrell
Editor

Christopher Burg
Art Director

Editorial
Managing Editor: Charles Barrett
Senior Associate Editors: Daniel Farber, Adrian Mello
Senior Technical Editor: David Ushijima
Associate Editors: Nancy E. Dunn, Janet McCandless
Assistant Editors: Eileen Drapiza, Valerie L. Kuletz, Joe Matazzoni
Senior Copy Editor: Peggy Nauts
Copy Editors: Cathy E. Abes, Julie Ericksen
Editorial Administrative Assistant: Otto Waldorf
Assistant to the Editorial Director: Daniel C. Berkowitz
Contributing Editors: Danny Goodman, Jim Heid, Steven Levy, Gordon McComb, Erfert Nielsen, Lon Poole

Art and Design
Designer: Susan Howard
Associate Art Director: Joanne Hoffman
Senior Design Associate: Leslie Barton
Design Associate: Victoria Floyd

Production
Director: Herbert Linden
Senior Production Managers: Frances Mann, Lee R. Trevino
Editorial Production Manager: Ellyn L. Hament
Production Editor: Susan M. Ford
Ad Traffic: Jayne Boyer
Lead Typesetter: Mark L. Duran
Typesetter: Virginia Weir
Display Advertising Supervisor: Georgia George
Assistant: Rosanne Reynoso

Research
Director: Cheryl Woodard
Manager: Gary L. Rocchio
Research Analyst: Ralph Ames
Administrative Assistant: Steven F. York

Corporate Development
Publicist: Shirley Gines
Special Projects: Jeffrey S. Glines
Administrative Assistant: Emily Bower

James E. Martin
Publisher

Marketing and Advertising Sales
National Advertising Manager: Larry Hilderbrand
Regional Advertising Manager/ No. California (San Francisco): Penny Rigby (415/546-7722)
No. California (San Jose), Northwest: Patricia Navone (415/546-7722)
Midwest: Shannon Dolan (312/827-4477)
Southeast: Judy Sutter (404/394-0758)
Eastern Advertising Manager/ New England: Linda Holbrook (617/879-0700)
New York: Gale Paterno (201/967-1350)
So. California, Southwest, Texas: Cynthia L. Ramsey (213/201-5900)
Directory/1/6-Page Ads: Niki Stranz
Advertising Services Manager: Ray Petsche

Circulation
Associate Publisher/Director: Penny Ertelt
Single-Copy Sales Manager: George Clark
Subscription Manager: Gail Egbert
Promotion Manager: Carolyn Goudsmit
Promotion Coordinator: Billie Brownell
Fulfillment Coordinator: Doug Norde

Administration
Director: Janet McGinnis
Accounting: Pat Murphy
Facilities: Joseph Wollenweber
Personnel: Shelly Ginenthal
Technical: Nancy Canning
Assistant to the President: Christina W. Spence
Assistant to the Publisher: Loretta Giglione

Corporate
PCW Communications, Inc.

David Bunnell
Chairman

Bartlett R. Rhoades
President & CEO

Herbert Linden
Vice President

James E. Martin
Vice President

Jacqueline Poitier
Vice President

Cheryl Woodard
Vice President

Andrew Fluegelman
1943-1985
Founding Editor

March 1987
Volume 4, Number 3

Macworld™ (ISSN 0741-8647) is published monthly by PCW Communications, Inc., 501 Second St. #600, San Francisco, CA 94107. Subscription rates are $30 for 12 issues, $50 for 24 issues, and $70 for 36 issues. Foreign orders must be prepaid in U.S. funds with additional postage. Add $6 per year from Canada and Mexico; add $12 per year for surface mail or $80 per year for airmail from all other countries. For subscriber service questions call toll-free 800/525-0643 (in Colorado 303/447-9330) or write: Subscriber Services, P.O. Box 54529, Boulder, CO 80322-4529. To place new orders, call 800/524-3200.
Second-class postage paid at San Francisco.
POSTMASTER: Send address changes to *Macworld*, P.O. Box 54529, Boulder, CO 80323-4529.
Editorial and business offices: 501 Second St. #600, San Francisco, CA 94107, 415/546-7722.
Macworld is a publication of PCW Communications, Inc.
Macworld is an independent journal, not affiliated in any way with Apple Computer, Inc.
Apple is a registered trademark of Apple Computer, Inc. Macintosh is a trademark licensed to Apple Computer, Inc. The following are trademarks of PCW Communications, Inc.: Note Pad, Macware Reviews, Open Window, Macworld Gallery, Macware News, Macworld View, Mac Bulletin, Quick Tips, Getting Started with . . . , Insights on . . . , Updates, Where to Buy, Macworld News.
Printed in the United States of America.
Copyright ©1987 PCW Communications, Inc.
All rights reserved.

BPA

A disk each month delivered to you... packed with programs for your Macintosh!

DISCOVER UPTIME. Build an exciting library of programs for less than one dollar each. You deserve value. At UPTIME value is yours. Each month over 30,000 people just like you enjoy UPTIME. Your disk arrives with eight programs and more every month...

Enjoy eight programs including two new desk accessories on each monthly disk. Make your life easier. Get more from your Macintosh. Organize and be more productive with **home management** programs. Learn with **educational** programs. Relax and enjoy monthly **games** or **adventures.** Using your Macintosh is now a snap with **tutorials** and **desk accessories.**

It's easy, inexpensive and fun. It's UPTIME! Too good to be true? There's even more! Each monthly disk has reviews of the latest software, hardware and peripherals. Save time and money. Learn the strengths and weaknesses of each item we evaluate. Shop "on the disk" in our Micro Discount Mall.

Subscribe now and save. You won't believe the low price! Satisfaction is guaranteed — or your money back. You'll be amazed at just how much comes on every UPTIME disk. Make the very next one yours. Fill out the coupon. For immediate service call toll-free:

1-800-437-0033
anytime, day or night.



LESS THAN $1 PER PROGRAM

NEW FOR ALL MACINTOSH COMPUTERS

VOLUME 1 ■ NUMBER 1

Programs

- LABEL MAGIC™
- CALENDAR DA
- FILE DOCTOR
- GINGHAM FONT
- LIVING ART
- MacSEVENS
- WE ARE THE WORD DA
- YAHTZEE

I'LL BYTE!!! SAVE $89.90 → 12 Disk Issues $89.50 ☐

I'm a Macintosh enthusiast who wants more. Please start my subscription to **UPTIME** immediately.

6 Disk Issues $59.50 ☐ **3** Disk Issues $36 ☐ **1** Disk Issue $14.95 ☐

(Add $2 per issue in foreign countries, except Canada and APO)

Name_____

Address_____

City_____ State____ Zip____

☐ Payment enclosed. (Please make checks payable to UPTIME.)

Bill my: ☐ Visa ☐ MasterCard Exp. Date_____

Signature_____

Account No._____

Send to:
UPTIME · PO Box 299
Newport, RI 02840
(401) 849-4925
10/86

Circle 537 on reader service card

AnthroCart.™

Mobile . . . a key reason why people like the AnthroCart. Share your hardware. Move it around. Take it room to room or floor to floor.

AnthroCart. High-tech furniture for high-tech equipment. Space saver. Compact. Rugged.

The AnthroCart is designed to move. Designed so your workspace is as slick as your hardware.

Call us: 800-325-3841









Supports up to 150 lbs.
All steel frame construction
5½ square foot footprint

ANTHRO

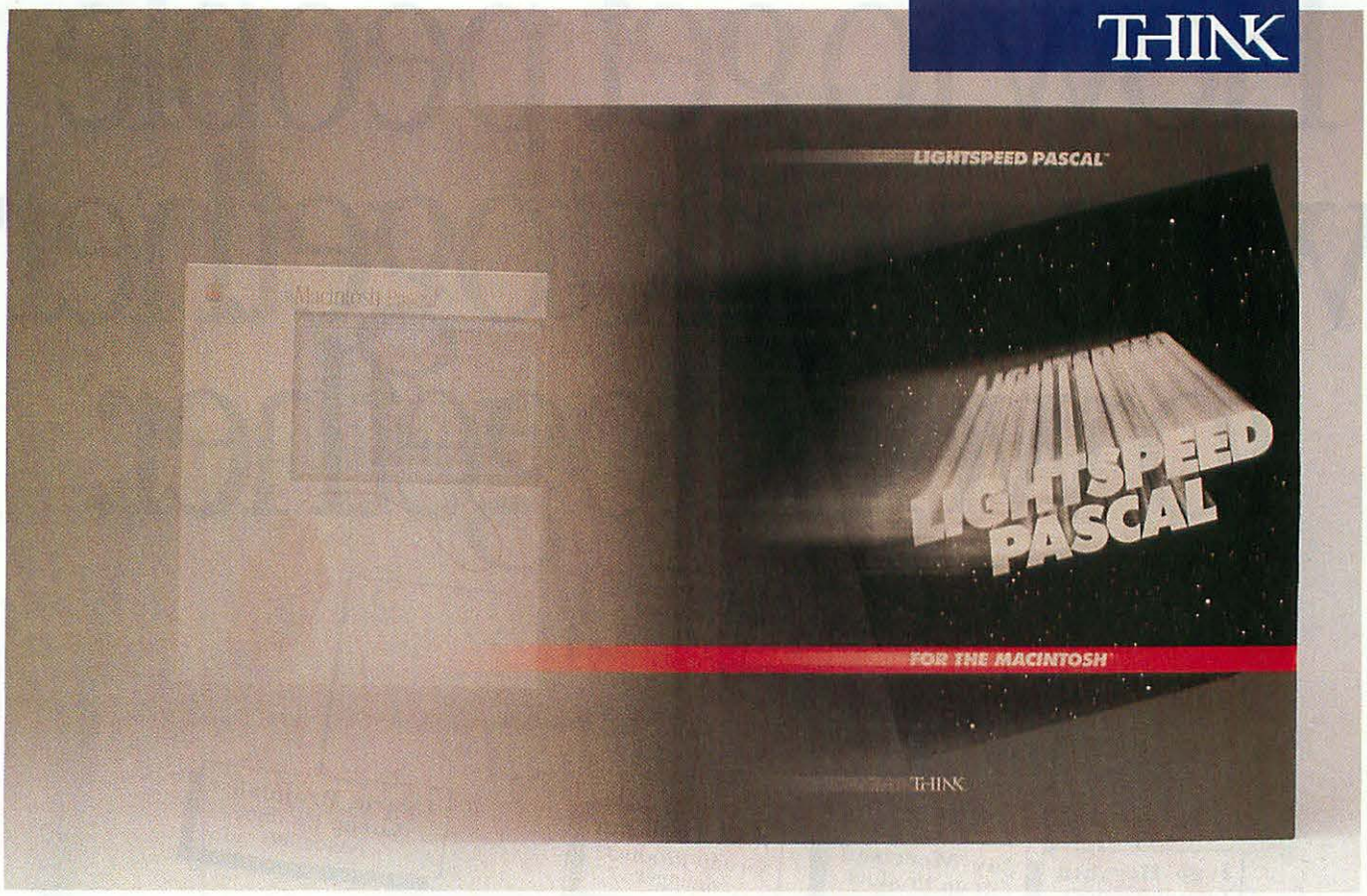
Anthro Corporation
Technology Furniture
3221 N.W. Yeon St.
Portland, OR 97210
503-241-7114

Anthro Corporation is a wholly owned subsidiary of Tektronix, Inc. Anthro is a registered trademark of Anthro Corporation.

Macworld is a member of the CW Communications/Inc. group, the world's largest publisher of computer-related information. The group publishes over 70 computer publications in more than 28 major countries. Twelve million people read one or more of the group's publications each month. Members of the CWCI group contribute to the *CW International News Service* offering the latest on domestic and international computer news. Members of the group include: Argentina: *Computerworld/Argentina;* Asia: *Asian Computerworld, Communications World;* Australia: *Computerworld Australia, Communications World, Australian PC World, Australian Macworld;* Austria: *Computerwelt Oesterreich;* Brazil: *DataNews, PC Mundo;* Chile: *Informatica, Computacion Personal;* Denmark: *Computerworld/Danmark, PC World Danmark, Run;* Finland: *Tietoviikko, Mikro;* France: *Le Monde Informatique, Distributique, Golden, InfoPC, Theoreme;* Greece: *Micro & Computer Age;* Hungary: *SZT Computerworld, Mikrovilag;* India: *Dataquest;* Israel: *People & Computers Monthly, People & Computers Weekly;* Italy: *Computerworld Italia, PC World Magazine;* Japan: *Computerworld Japan;* Mexico: *Computerworld Mexico;* The Netherlands: *Computerworld Netherlands, PC World Netherlands;* New Zealand: *Computerworld New Zealand;* Norway: *PC Mikrodata, Computerworld Norge;* People's Republic of China: *China Computerworld;* Saudi Arabia: *Arabian Computer News;* South Korea: *The Electronic Times;* Spain: *Computerworld/-España, Commodore World, PC World España;* Sweden: *Computer Sweden, Mikrodatorn, Svenska PC World;* Switzerland: *Computerworld Schweiz;* United Kingdom: *Computer News, DEC Today, ICL Today, PC Business World;* United States: *Amiga World, Boston Computer News, Computerworld, Digital News, 80 Micro, FOCUS Publications, InCider, InfoWorld, Macworld, Micro Marketworld, Network World, PC World, Publish!, Run;* Venezuela: *Computerworld Venezuela;* West Germany: *Computerwoche, PC Welt, Computer Business, Run, InfoWelt.*

A PUBLICATION OF CW COMMUNICATIONS

THINK



LIGHTSPEED PASCAL™
THE FUTURE REPEATS ITSELF.

JANUARY 1984. (Cupertino, California.)—Apple introduces the Macintosh.™ At the press conference, six software developers, including Microsoft and Lotus, announce their commitment to the new machine. Among them is THINK Technologies, a start-up developer of advanced systems software.

THINK announces Macintosh Pascal. It is a breakthrough. For the first time, a practical interactive interpreter is available for Pascal. People can now learn to program in a whole new way. They can look inside their program and get immediate feedback. Incorporating the Mac interface in this programming environment, THINK creates a new future for the Macintosh in education.

Writing in The New York Times, Erik Sandberg-Diment says "MacPascal alone might be reason enough for the college-bound science or engineering major to purchase" a Mac. The product becomes a standard in university computer science courses. Users are enthusiastic. But in time they demand even more from THINK.

AUGUST 1986. (Boston, Massachusetts.)—THINK introduces Lightspeed Pascal at MacWorld Expo. It is a breakthrough. It utilizes new compiling and linking technology previously available only with THINK's Lightspeed C. But it goes even further. Like Macintosh Pascal, it provides the same ability to look inside a program, but without the need for an interpreter. It offers blinding speed and the ability to build large programs. The response is overwhelming. In the first two weeks THINK sells thousands.

Lightspeed Pascal marks a turning point in programming the Mac. It has all the features that made Macintosh Pascal a standard. And much more. Now users can create real standalone "double-clickable" applications and desk accessories. THINK creates a new future for Macintosh programmers.

Lightspeed Pascal is priced at $125. It is not copy-protected. The package includes a 600-page manual with extensive index. It provides complete Toolbox/OS support. It is compatible with Macintosh Pascal and Lisa Pascal.

The future is here. Order Lightspeed Pascal now.

Please send me Lightspeed Pascal today. Enclosed is $ _____ for _____ copies. ($125/copy)

NAME TITLE COMPANY

ADDRESS CITY STATE ZIP PHONE

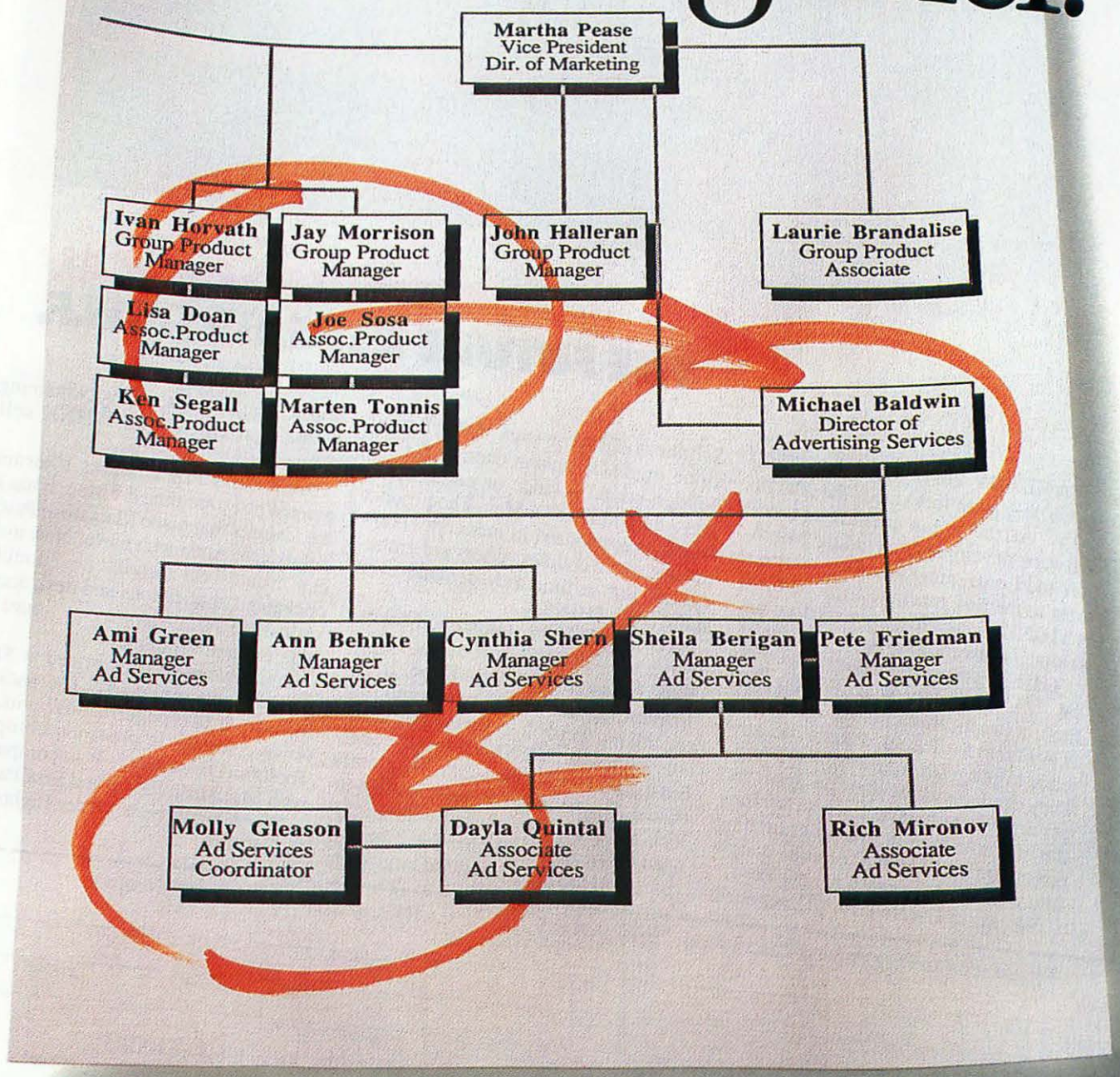
ACCT # ☐ MC ☐ VISA ☐ AMEX ☐ CHECK ENCLOSED EXP. DATE SIGNATURE

Mail to: THINK Technologies, 420 Bedford Street, Lexington, MA 02173. Or call 617-863-5595

Lightspeed Pascal is a trademark of THINK Technologies, Inc. Macintosh is a trademark of Macintosh Laboratory, Inc. and is used by Apple Computer, Inc. with its express permission.

Circle 96 on reader service card

How to get people who work together to work together.



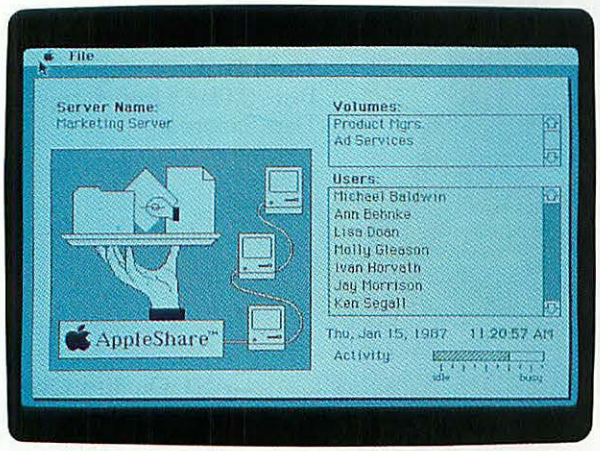
INTRODUCING APPLESHARE.

You've heard the talk about the future of personal computing.

About how Desktop Communications will change the way we work together. Let us share important documents. And allow us instant access not only to information, but to each other.

Well, enough talk.

AppleShare™ is here today.



All for one and one for all. With the AppleShare system, the workgroup's documents are yours for the asking.

It's a new file-serving system designed to build on the power of the AppleTalk® network. So each person can share information with other individuals, groups of people or everyone in the organization.

But what's truly revolutionary is how it works—just like a Macintosh™ personal computer.

The system utilizes a Macintosh with virtually any hard disk as a file server, so sharing is easy. Simply put a document into a folder, and it's available on the network. Instantly.

In fact, to use AppleShare, you need only a fleeting familiarity with two of the most basic Macintosh skills.

Pointing. And clicking.

THE FREEDOM OF INFORMATION ACT.

Every time you create a document, AppleShare lets you decide how (or if) it's to be shared.

Thanks to AppleShare access control, you can grant rights to specific individuals, at three different levels: 1) see folder, 2) read documents within a folder and 3) make changes.

And each folder will contain the most recent versions of the work within. Because the system is constantly updating itself.

ALL TOGETHER NOW.

Apple Desktop Communications can do wonders for productivity, beyond merely sharing folders.

Using a program like InBox, one person can easily send electronic mail to anyone on the network. Or just as easily, to a pre-defined list of people. And these messages can include complete documents, such as those created by Microsoft Word or Excel.

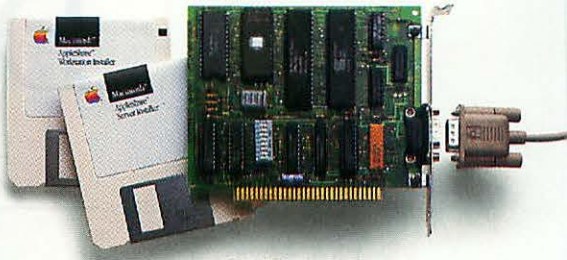
With this new power, Apple Desktop Publishing becomes a whole new ballgame. Because quickly and electronically, you can collect the information you want to publish. Even from people who don't use Macintosh.

INTRODUCING THE APPLETALK PC CARD.

Now you can communicate with other forms of intelligent life.

Just plug our PC Card into an MS-DOS-based computer, and it too can become an active part of the AppleTalk network.

Then, using a program like InBox PC, ideas that are conceived in the MS-DOS world can be painlessly transferred to a Macintosh.



Now even your MS-DOS computer can become a card-carrying member of the AppleTalk network.

Where they can be analyzed more deeply. Studied more insightfully.

And, with the able assistance of an Apple LaserWriter® printer, presented far more brilliantly.

TURN KNOWLEDGE INTO POWER.

Once you've begun sharing information within the workgroup, you'll likely thirst for greater power.

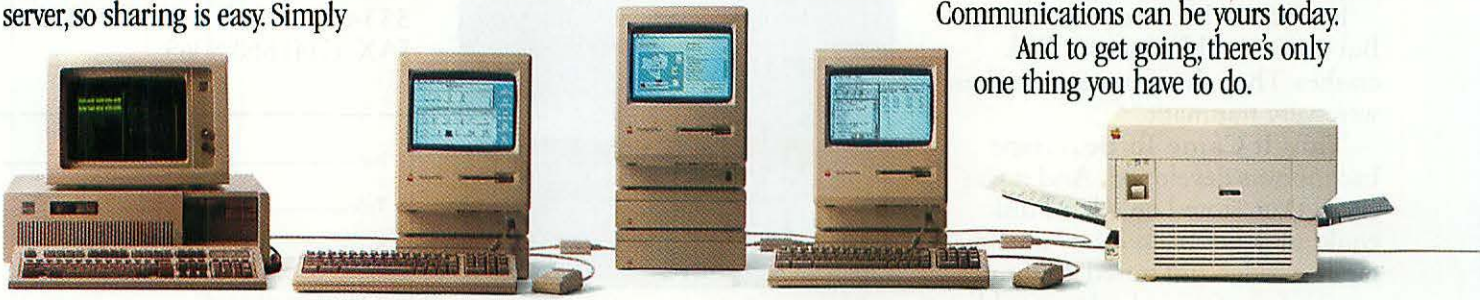
Which, as it just so happens, is readily available.

You can bring others into the group, via AppleTalk cabling, phone lines or fiber optic cabling. Link a number of workgroups together with options like Hayes InterBridge.

Or, with FastPath and EtherSC, even tie the whole company together on Ethernet cabling.

The full power of Apple Desktop Communications can be yours today.

And to get going, there's only one thing you have to do.



With Apple Desktop Communications, you can share information amongst a group of computers, including even those of the MS-DOS variety.

Start communicating:

Call 800-538-9696, Ext. 700, for the name of a participating Apple dealer near you.

The power to be your best.™

© 1987 Apple Computer, Inc. Apple, the Apple logo, AppleTalk and LaserWriter are registered trademarks of Apple Computer, Inc. AppleShare and Macintosh are trademarks of Apple Computer, Inc. Microsoft is a registered trademark of Microsoft Corporation. InBox and InBox PC are trademarks of Think Technologies, Inc. Hayes is a registered trademark and InterBridge is a trademark of Hayes Microcomputer Products, Inc. Ethernet is a trademark of Xerox Corporation. FastPath and EtherSC are trademarks of Kinetics, Inc.

The Evolution Of Data Storage.

SCSI. Small Computer System Interface For Fast Data Transfer And Plug 'n Play Installation.

Tape "Disk." Fast 20 MB Tape Drive Can Be Used For Hard Disk Backup Or Direct Read And Write.

256K Cache. AST's Exclusive Memory Cache Provides A RAM-Fast Buffer To Tape.



Hard Disk. 20 Megabytes (MB) Of Fast-Access Data Storage.

AST Quality. Over 160,000,000 Read And Write Tests Performed On Each Unit.

In The Beginning... there were floppy disk drives. They were slow. Then came Winchester hard disks that plugged into a Macintosh™ serial or floppy port. These offered increased storage but were still slow.

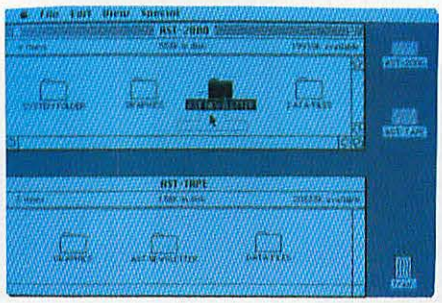
And Then One Day... someone invented SCSI (Small Computer System Interface), a much faster interface than floppy or serial ports. And suddenly, hard disks were more than just lots of storage. They were fast.

Hard disks became very popular. But a new problem arose. Disk crashes. Though infrequent, crashes were very traumatic.

Thus It Came To Be... tape backup was developed. And it was good. Data stored on a hard disk could now be "backed up" onto a tape cartridge and stored. In the eventuality of a crash, data could then be restored to the hard disk. The trauma was over.

Tape backup was slow, however, and the engineers at AST Research could not rest. They labored to create a better hard disk/tape backup system. And, thus, after many months of toil they developed a 256K Cache and a Tape Motion Optimizer Algorithm. Innovations so unique, patents were applied for.*

An Unprecedented Advance... the Cache was a RAM buffer into which files could be moved for back-up to tape. The computer would then be freed up. Work could continue while backup was occurring! And, yes, it was even user friendly.



And, if the hard disk should need maintenance, the tape could be used like a floppy diskette – written to directly via the fast 256K RAM Cache.

The system was complete! The AST-2000™ was born.

AST-2000: The Pinnacle of Data Storage Evolution. The AST-2000 combines a 20 MB Winchester hard disk, 20 MB Tape, 256K Cache and SCSI connector. It is the ultimate data storage system for your Apple® Macintosh Plus.

Contact your nearest AST-authorized Apple Products Dealer today! Or send the coupon to AST Research, Inc., 2121 Alton Avenue, Irvine, CA 92714-4992. Phone: **(714) 553-0340.** BBS: (714) 660-9175 FAX: (714) 660-8063.

Name_____

Title_____

Company_____

Address_____

City_____ State____ Zip_____

Telephone_____

Send to: AST Research, Inc., 2121 Alton Avenue, Irvine, CA 92714-4992, Attn: Apple Enhancement Products Group

Macworld 3/87



AST® RESEARCH INC.

*Patents pending.

AST and the AST logo registered and AST-2000 trademarks of AST Research, Inc. Apple registered trademark of Apple Computer, Inc. Macintosh trademark of McIntosh Laboratory, Inc., licensed to Apple Computer, Inc., and used with the express permission of the owner. Copyright © 1986 AST Research, Inc. All rights reserved.

The Desktop Publishing Revolution Continues.



AST Research Announces The AST TurboScan.™ It's the perfect addition to your Macintosh™ desktop publishing system.

AST TurboScan optically scans and digitizes photographs, artwork, handwriting, text... anything that can be rendered on paper. It allows you to incorporate such images into newsletters, reports, letters, artwork... any type of document.

A Revolution In Resolution!

AST TurboScan's 300 dots-per-inch (dpi) resolution matches your LaserWriter's® dpi for optimal visual clarity. So you can scan and print at near half-tone quality. And we've included AST TurboScan Utility™ software to let you enlarge, reduce and merge scanned images with text and other graphics.



You can scan in either of three modes: Line Art Mode for images that are black and white without shading; Halftone Mode for photographs and other images with continuous shading; and, Mixed Mode for a combination of Line Art and Halftone modes. There's also resolution, contrast, brightness and gray scale controls. And advanced data compression reduces scanning time and saves disk storage.

AST—Leading The Revolution!

At AST we're in the vanguard of creating new solutions. And AST TurboScan is just one of the many quality products we offer to improve or enhance the performance of your Apple® computer.

Contact your nearest AST-authorized Apple Products Dealer today! Or send the coupon to AST Research, Inc., 2121 Alton Ave., Irvine, CA 92714-4992. Phone: **(714) 553-0340.** BBS: (714) 660-9175. FAX: (714) 660-8063.

Name_____

Title_____

Company_____

Address_____

City_____ State____ Zip____

Telephone_____

Send to: AST Research, Inc., 2121 Alton Ave., Irvine, CA 92714-4992,
Attn: Apple Enhancement Products Group

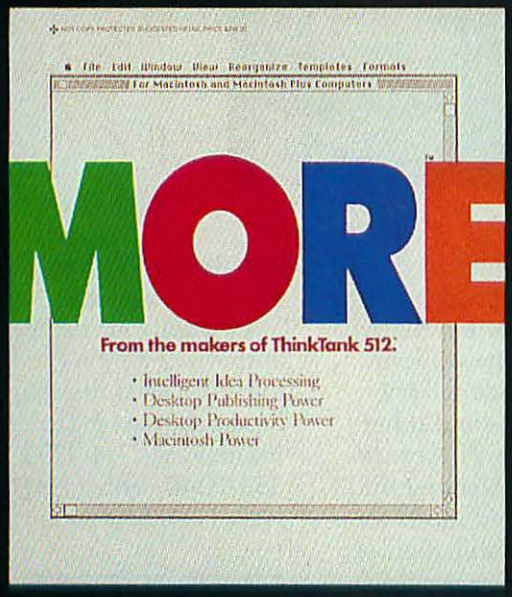
Macworld 3/87

AST and the AST logo registered trademarks and TurboScan and TurboScan Utility trademarks of AST Research, Inc. Apple and LaserWriter registered trademarks of Apple Computer, Inc. Macintosh trademark of McIntosh Laboratory, Inc., licensed to Apple Computer, Inc., and used with the express permission of the owner. Copyright © 1986 AST Research, Inc. All rights reserved.

AST® RESEARCH INC.



MacUser Magazine just confirmed what every user of MORE™ already knew...





MORE is the 1986 Product of the Year.

To find out why, call 1-800-822-3700. In California call 1-800-443-4310.

LIVING VIDEOTEXT
Software that people really use

2432 Charleston Road, Mountain View, CA 94043 415-964-6300

MORE is not copy protected. Suggested retail price $295. For all Macintosh systems with 512K or more. MORE, ThinkTank 512, ThinkTank 128, and ThinkTank are trademarks of Living Videotext. The names of the products above may be trademarks or registered trademarks.

Circle 50 on reader service card

Mac Bulletin

VideoWorks

Macromind of Chicago has bought back the rights to develop new versions of its original programs *MusicWorks, VideoWorks,* and *M.U.D.* Leading the way is *VideoWorks Interactive,* which offers a new concept in programming using icons, animation, and a real-time procedural language. *VideoWorks Interactive*'s programming capabilities range from interactive presentations and courseware to market research tools and video games. Macromind will also offer *VideoWorks II,* an improved version of the original, and *M.U.D. II,* which will include the airbrush as a desk accessory (as seen in *GraphicWorks* and *ComicWorks*). The airbrush can be installed in *FullPaint* and other paint programs. Spinnaker Software continues selling the original versions of *M.U.D.* and *VideoWorks.* Macromind will provide upgrade credit for all previous owners of its products.

Micro Planner Project Exchange

Micro Planning Software, International, has released two new products to complement *Micro Planner,* its sophisticated project management application. *Micro Planner Project Plotter* allows you to plot network logic diagrams and/or resource or cost histograms on multicolor pen plotters. *Micro Planner Project Exchange* provides for easy exchange and manipulation of information between projects, other applications, and other computers. The software lets users convert *MacProject* files into *Micro Planner* files, merge separate projects into larger projects, break large projects into smaller projects, import and export files to and from mini and mainframe applications, and swap files between *Micro Planner* on IBM PCs or compatibles and *Micro Planner* on the Mac. Both products retail for $100.

The Seven-Digit Mac

Apple expects to have rolled the one-millionth Mac off the assembly line by the beginning of March. Perhaps it will be gold plated or bronzed for posterity. Whatever the case, the Mac is gaining on the IBM PC and compatibles market, and should continue to multiply fruitfully.

AppleTalk Star

Farallon Computing of Berkeley has developed a controller and software for managing large AppleTalk-compatible networks on ordinary phone lines. The PhoneNet StarController allows for star-configured networks with up to 12 branches. An add-on board and software provide the capability to monitor and debug the network from a remote location. *TrafficReporter,* the software package, watches all conversations between nodes and keeps track of the size and number of packets sent, as well as errors between nodes.

Farallon is also providing a repeater that will extend a network's connection capability beyond the current 3000 feet. The repeater will have an RS-423 port, which provides separate transmission and reception lines, allowing you to run AppleTalk through other media, such as infrared, microwave, laser, and fiber optic channels.

The controller will sell for about $1000 and the software for $500. The repeater will sell for under $200.

Laser Spooling

Think Technologies has published a LaserWriter spooler capable of spooling documents for existing and future versions of *PageMaker. LaserSpeed* works with all downloadable fonts and sells for $99 for a single Mac. The $499 *LaserSpeed* Office Pack includes five *LaserSpeed* disks and manuals, and it allows you to distribute disks freely to anyone hooked up to the LaserWriter.

SuperMac Technology has introduced *SuperLaser Spool,* an upgrade of *Super Spool* for the ImageWriter. The program derives its speed from spooling QuickDraw rather than PostScript-interpreted code. As a result, the print management process—including the conversion of QuickDraw to PostScript—takes place in the background. The single-user version costs $149.95, and the multiuser version, which includes five disks and allows five people to spool concurrently, costs $395.

MacNosy, Part II

Steve Jasik, author of the disassembler *MacNosy,* has introduced *"The Debugger",* a window-based, high-level symbolic debugger. *"The Debugger"* features an intelligent "stack crawl" that can work its way out of ROM back to the user's program, and it has the ability to display system structures in understandable formats. The $100 program is available through dealers or from the author.

IBM File Transfer

Dayna Communications is now shipping its FT100 file-transfer unit, which translates files between IBM PCs and Macintoshes. The $595 FT100 is a 5-inch-wide unit that fits next to the Macintosh and includes a 5¼-inch PC drive, Mac software, and cables. The unit connects to the Mac's serial or SCSI port. For an additional $95, Dayna will also include a file-translation program developed by DataViz that preserves formatting features, such as boldface, underline, and tabs, when files are transferred. The program works with *WordStar, MultiMate, DisplayWrite, dBase II* and *III,* and other popular PC software.

Letraset Switches

On the eve of the Macworld Expo last January, Letraset of Paramus, New Jersey, bought the rights to market Manhattan Graphics' desktop

(continues)

publishing program *ReadySetGo* and dropped *LetraPage* (formerly *MacPublisher*). *LetraPage* will be released as *MacPublisher III* by its developer, Boston Publishing Systems. Officially, Letraset made the switch because *LetraPage* wasn't bug-free at Expo time. The change was so abrupt that documents used in Letraset's *"ReadySetGo"* Expo demonstrations were cosmetically altered *LetraPage/MacPublisher III* layouts.

New HyperDrives

▶ General Computer has introduced a conversion kit for $19.95 that lets you format a HyperDrive FX/20 for the Apple II line of computers. The conversion, which is performed by HyperDrive dealers, also requires a SCSI port adapter from Apple. In addition, General Computer now offers a 40-megabyte external hard disk, the HyperDrive FX/40 ($1995), which includes the same software and utilities as the $1199 FX/20.

Desktop Presentations

▶ Programs like *MacDraw* and *More* have proven the value of the Mac for producing visual aids for business presentations. Now, Forethought, Incorporated, has developed a new product especially for creating desktop presentations. The program—code-named *Presenter*—allows you to produce overhead transparencies or 35mm slides with ease. The product should be available this spring and will cost between $295 and $395.

In addition, Forethought has teamed up with business forms publisher NEBS to create a package of business templates for its database *FileMaker*. The $69.95 package allows you to enter data into a series of preformatted *FileMaker* screens and then print information directly onto NEBS's most popular business forms.

Run-Time Tempo

▶ Affinity MicroSystems has developed a run-time version of *Tempo* called *Tempo/RT*. The new macro program is designed for publishers who want to distribute software demos that will run themselves, or for value-added resellers who create macros for customers. *Tempo/RT* allows you to encrypt macros so you can protect proprietary macros.

In addition, Affinity is developing a desk accessory that will provide a limited database and a voice recognition device that can trigger *Tempo* macros with a single voice command.

SuperPaint Scanners

▶ Touching up scanned images is an application for which paint programs are ideally suited. Silicon Beach Software, publisher of *SuperPaint*, has persuaded the major scanner manufacturers in the Macintosh market to make their products compatible with *SuperPaint*. Since 300-dpi documents can be edited from within the program, *SuperPaint* conveniently parallels the maximum resolutions of several scanners. Scanner manufacturers, such as Microtek, New Image Technologies, Datacopy Corporation, DEST Corporation, and Kurzweil, plan to modify their software so that scanned images can be saved in *SuperPaint*'s file format, allowing users to open files directly from within *SuperPaint*. In addition, some of these companies have agreed to bundle or resell *SuperPaint* with their scanners.

More 1.1

▶ Living Videotext has been shipping a new version of its popular outliner/desktop presentation program, *More*. New features implemented at the request of program users include a comprehensive Undo command, the ability to mix type styles in an outline, multilevel bullet charts, the ability to modify default settings, and template enhancements. A free upgrade is available for registered owners of *More*.

Mac C Jr.

▶ Consulair has released *Mac C Jr.*, a new C development system aimed at the university market and anyone interested in learning C programming on the Mac. The compiler is the same as the one in the $425 *Mac C Toolkit* development system, but the new package doesn't include the *Toolkit*'s library of routines. At $79.95, *Mac C Jr.* costs less than competitors like *LightspeedC*, and should attract student programmers on a budget.

Memory for Less

▶ MacMemory, one of the leading suppliers of memory upgrades for the Mac, is offering a low-cost upgrade board for 128K and 512K Macs. The Max 2+ adds 1 megabyte, expandable to 4 megabytes, of SIMM memory. The board also includes a SCSI adapter and MaxSave, RAM disk recovery firmware. In addition, software runs about 30 percent faster than it would without the board. The 512K upgrade costs $399, the 128K upgrade $499.

DiskEnsure

▶ ALSoft, publisher of *DiskExpress* and *MacExpress*, has developed a backup utility program for hard disks called *DiskEnsure*, which provides a true incremental backup—replacing old versions of files with current ones. The $39.95 program also has a "disk rejuvenation" feature, which lets you automatically back up a drive, reinitialize it, and restore it.

Memorandum

▶ Target Software, publisher of *Voila* and *MacLightning*, has introduced *Memorandum*, a desk accessory that allows you to attach "electronic Post-its" to any document. *Memorandum* is intended primarily for attaching notes to spreadsheet cells.

Faster Networks

▶ Although AppleTalk is adequate for many tasks, its current data-transfer rate is limited to 234 kilobits per second. Kinetics, Incorporated, is developing an Ethernet controller for the Mac Plus that will speed up AppleTalk networks. The Ether-SC increases transfer speeds by directly linking the Mac's SCSI port to Ethernet networks. Kinetics is working to ensure compatibility with future 68020-based Macs. □

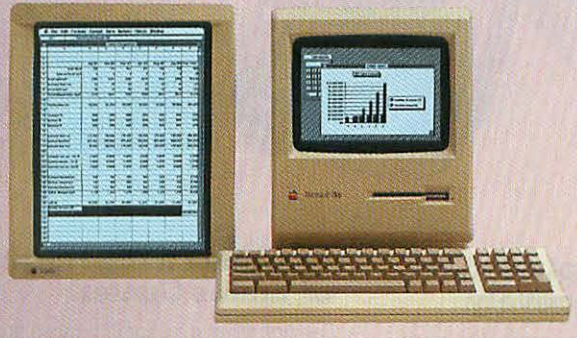
See what you've been missing.

Full page views of your documents, for example. Unobstructed displays of several windows simultaneously. And dozens of other applications for which the Macintosh™ has been able to give you only part of the story. Until now, that is.

Introducing the Radius Full Page Display.

The Radius FPD™ works side by side with your Macintosh to make creating, editing, and laying out documents easier than ever — by letting you see a full 8½" by 11" page.

That means less scrolling. Less enlarging and reducing. And, because your Macintosh doesn't sit idle, a much more useful way to work.



The FPD extends your investment in the Macintosh.

Lay out a page on the FPD, for example, while the Macintosh holds tools, palettes, desk accessories, and other windows. Or treat the two screens as a single, contiguous display, viewing large, horizontal documents. Even drag text or graphics between the two.

The FPD is in every way an extension of your Macintosh, from the electronics to the aesthetics. But then, there's a good reason for that.

The team that developed the Radius FPD is the same group of experts that designed and built the original Macintosh. Which means you're assured of the highest-quality product, from top to bottom.

Want to find out more? Contact your nearest authorized Radius dealer to get the full story. (Or call us at 408-732-1010 for the name of the dealer nearest you.)

And see what you've been missing.

RADIUS

Radius, Inc.
1050 East Duane Avenue, Suite F
Sunnyvale, CA 94086

Radius FPD is a trademark of Radius, Inc. Macintosh is a trademark licensed to Apple Computer, Inc.

Circle 577 on reader service card

How to dramatically improve the way you manage meetings, ideas, time and people with MORE.™

If you're like most people your time is valuable. You believe you should, and could be more effective managing your daily tasks. Perhaps you've even tried conventional methods of increasing efficiency—making lists of priorities, delegating, keeping diaries, etc.—only to find little has changed because you're still wasting valuable time.

That's why we wrote this guide. We want to explain four ways to improve the way you work by using the power of MORE and a Macintosh.

If you're too busy to read further, please skip ahead to the coupon and see how easy it is to receive our free time saving booklets on ***Managing Meetings, Preparing Business Plans, Creating Tree Charts and Organizing a Status Center.***



What's different about this meeting? The Macintosh on the table is running MORE. With MORE in the meeting, ideas will be focused and presented better than ever before possible.

1 Start a revolution at your next meeting.

How often do you come away from a meeting satisfied with the results? Probably not as often as you would like. Here are some simple ways to get more accomplished at your next meeting:

- Have a specific objective in mind, as the meeting progresses, be sure you're still dealing with the same problem.
- Only cover things that cannot be put across in other ways—bulletins, manuals, direct contact with supervisors, etc.
- Don't try to cover more ground than time will permit. You can't solve the world's problems in a 30-minute staff meeting.
- Prepare for the meeting. Find out what the other people attending need to know before the meeting.

Why MORE is so revolutionary in meetings.

Try taking a Macintosh and MORE into your next meeting. Start with an outlined agenda, develop the issues into a group action plan. The participants—even those who don't use a computer—can direct the content and organization of the plan. Graphic Tree Charts and Bullet Charts help you present the impact of your decisions. At any point, you can review what's been accomplished. Everyone gets a uniform set of meeting notes, on disk or printed. This frees the participants from having to take detailed notes. Everyone knows what was decided, so next time you sit down there won't be a debate. Spreadsheets started a revolution for people who work with numbers. MORE is starting a revolution for people who spend time in meetings.

2 Manage people and projects effectively.

Managing people and projects can be very difficult. Some managers apply common sense, others learn by doing, others simply avoid the problem all together. In an effort to simplify a complicated subject here are a few things that will help any manager:

- Managing requires a great deal of talking and listening. It sounds easy, but it is a constant job that requires a concentrated effort.
- Job descriptions and boundaries should be provided for every person's job.
- Feedback on performance and encouragement improve motivation. Doing and saying nothing leads to stagnation.
- Find the best people you can and support them.

Now there's a way to manage people and projects better using MORE. Managers, executives, corporate planners and personnel staff can use MORE to outline their management ideas and instantly transform them into a Tree Chart. You can use Tree Charts for organizational charts, project flowcharts, decision trees, block diagrams or time lines. MORE also is a powerful tool for writing job descriptions and preparing employee reviews. As a project management tool, MORE is fast and flexible.

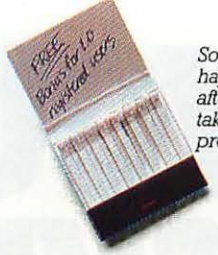
3 Create a time saving Status Center.

The first step in becoming more time-efficient is to identify how you spend your time. Naturally, once you've figured how and why time is spent, you begin to do things that give you higher payoffs and more satisfaction.

For you, MORE becomes a convenient and powerful electronic notebook and card file. You collect and organize the details of



The next best thing to having a clock that runs backwards is having a Macintosh that runs MORE. With MORE you can set up a Status Center to organize the details of your daily work.



Some of the best ideas you have don't always happen in front of computer. (That could change after you've used MORE.) For example, you can take your ideas from scraps of paper to a finished presentation in minutes.





daily work in an outline—your personal Status Center. You keep this outline up-to-date, using it to:

- List and organize your tasks
- Record names, addresses, and phone numbers
- Keep your daily calendar
- Write and file notes and memos
- Track your expenses

MORE's power outlining lets you change and interconnect your lists with ease. You can use the Templates feature to store "boilerplate" such as an address form and call it up at any time. The calendar feature will generate a daily schedule automatically. Most of your writing and word-processing work can be done right in MORE. You can even dial a phone, record the time and date, and calculate a sum—all by pressing a key. MORE is the ultimate tool for desktop productivity.

4 Process your ideas, then present them.

If you've ever had to prepare a presentation in a hurry—you know how frustrating and time-consuming the task can be. Technique is an important part of presenting your ideas effectively. Here are some simple steps that will take you from rough ideas to finished presentations:

- Make a "laundry-list" outline of basic ideas.
- Become uninhibited with your ideas—don't edit on your first pass.
- Be generous with headings, call-outs, charts and illustrations.
- Allow yourself the flexibility to change your presentation, even at the last minute.

Now you can prepare a presentation quickly and professionally, even at the last minute. For the first time, MORE integrates idea processing with idea presentation. You can outline your ideas and quickly transform them into attractive Bullet Charts. Add Tree Charts and pictures, and you have a full-fledged slide show. MORE is ideal for the entrepreneur writing a business plan—and also for anyone who develops presentations: managers and decision makers, executives, corporate planners, sales staff, educators.

There's more...

To receive your free time saving booklets, fill out the coupon below. To experience the power and speed of MORE in person, visit your local computer dealer for a demonstration.

Suggested retail price $295

For Your Nearest Dealer Call
1-800-822-3700,
in California call 1-800-443-4310,
in Canada call 415-964-6300.



Yes! Rush me the following copies of your MORE booklets.

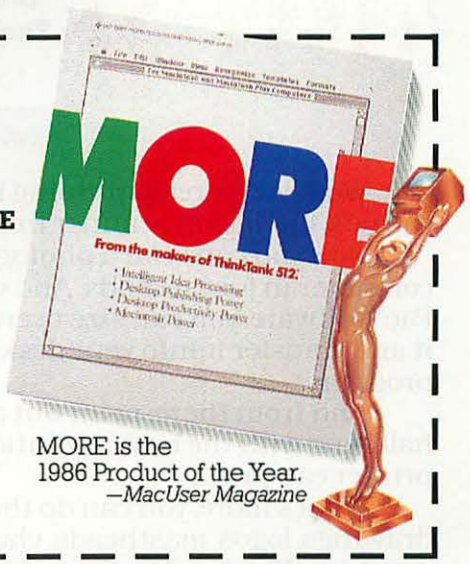
- ☐ **Organizing a Status Center in MORE**
- ☐ **Managing a Meeting with MORE**
- ☐ **Presenting a Business Plan with MORE**
- ☐ **Creating Tree Charts in MORE**

Name

Address

City *State* *Zip*

Telephone



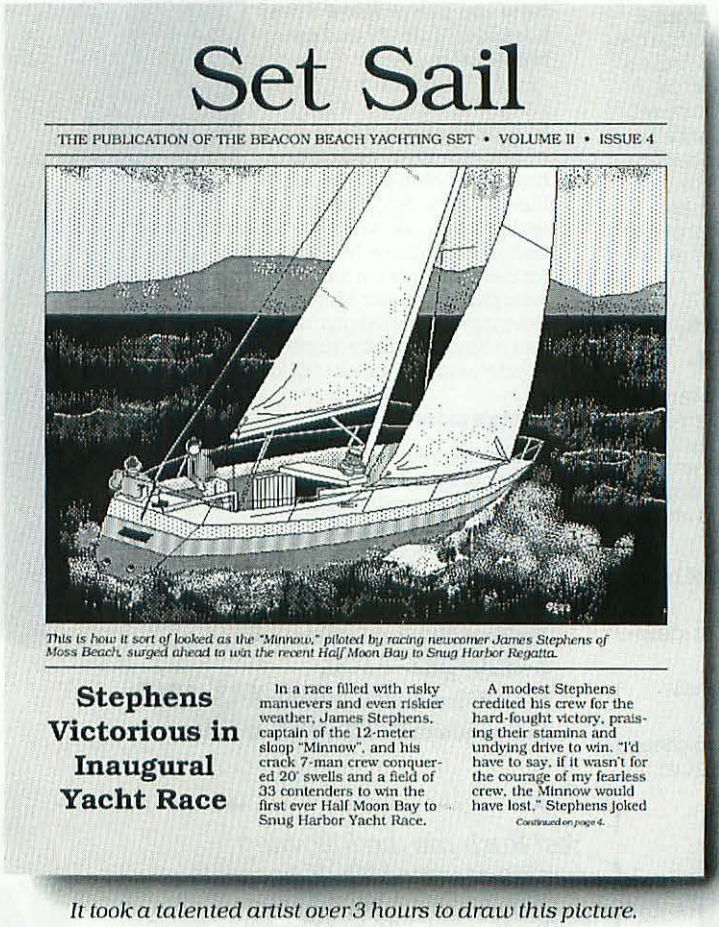
MORE is the 1986 Product of the Year. —*MacUser Magazine*

LIVING VIDEOTEXT
2432 Charleston Road
Mountain View, CA 94043

Offer good while supplies last. MORE is not copy protected. For all Macintosh systems with 512K or more. MORE, ThinkTank 512, ThinkTank 128, and ThinkTank are trademarks of Living Videotext. The names of the products above may be trademarks or registered trademarks.

Circle 50 on reader service card

IF THIS IS YOUR IDEA OF DESKTOP PUBLISHING,



It took a talented artist over 3 hours to draw this picture.

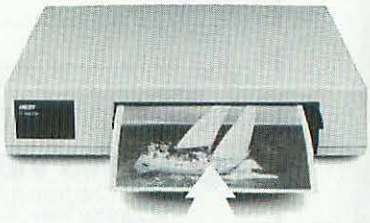
What you're really missing is PC Scan Plus,™ the new intelligent scanner from DEST.

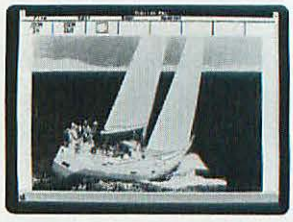
Now you can scan a photograph into your computer in just seconds. And with our Publish Pac™ software, you can size it, crop it, enhance it and transfer it into your desktop publishing program.

And from there, print out a high-quality half-tone with the best resolution your laser printer can print.

What's more, you can do the same with drawings, logos, mastheads, charts and other graphics. Which means now you don't have to be an accomplished artist to accomplish a lot.

But then, considering all the power you're adding to your desktop, that's not too surprising. You see, unlike less intelligent scanners, PC Scan Plus comes with its own microprocessor,





In seconds, PC Scan Plus lets you scan photos, graphics and even text into your Macintosh™ Plus, IBM® and compatible PCs. Which makes it the easiest way to put words and pictures on paper.

YOU'RE MISSING THE BOAT.



Set Sail

THE PUBLICATION OF THE BEACON BEACH YACHTING SET • VOLUME II • ISSUE 4

Pictured here is the "Minnow," piloted by racing newcomer James Stephens of Moss Beach, surging ahead to win the Half Moon Bay to Snug Harbor Regatta. (Photo by George Chadwick)

Stephens Victorious in Inaugural Yacht Race

In a race filled with risky manuevers and even riskier weather, James Stephens, captain of the 12-meter sloop "Minnow", and his crack 7-man crew conquered 20' swells and a field of 33 contenders to win the first ever Half Moon Bay to Snug Harbor Yacht Race.

A modest Stephens credited his crew for the hard-fought victory, praising their stamina and undying drive to win. "I'd have to say, if it wasn't for the courage of my fearless crew, the Minnow would have lost," Stephens joked

Continued on page 4.

It took PC Scan Plus just 30 seconds to scan this photograph.

more memory than most PCs, and even a SCSI interface.

All of which lets you do plenty more, plenty fast. And in much more graphic detail.

WE ALSO HAVE A WAY WITH WORDS.

PC Scan Plus can do for words what it does for pictures.

So now, instead of retyping text, you can simply scan it into your computer. Edit or add to it. Then transfer the information into your desktop publishing program and go to press.

Of course, scanning words is nothing new to us. For nearly a decade, DEST has been making the leading line of scanners for word processing systems. And now we're out to do the same for desktop publishing.

So call and ask us about PC Scan Plus today. Or you won't know what you're missing.

DEST

Outside California, 800-538-7582.
In California, 408-946-7100.

Circle 615 on reader service card

© 1986, DEST Corporation. PC Scan Plus and Publish Pac are trademarks of DEST Corporation. Other names indicated by ™ or ® are trademarks and/or tradenames of their respective manufacturers. PC Scan is not to be confused with PC Scanner, a product of Caere Corp.

Desktop Publishing Power Redefined.

Introducing the only desktop publishing program capable of real-time hyphenation, automatic text runarounds, kerning and spell checking.

Click on Ready,Set,Go! 3's Design Grids and a preformatted grid appears. Your layout takes shape effortlessly as text blocks snap to the nearest grids.

As you type, words hyphenate in an eyeblink. Editing changes ripple through your columns while paragraphs reformat and rehyphenate instantly.

Misspelled your boss's wife's name? Ready,Set,Go!'s Find feature flashes through your text to replace this fatal *faux pas*.

A 60,000-word spelling checker proofs your stream-of-consciousness prose quickly – giving you more time to be creative.

No need to type *supercalifragilisticexpialidocious* repeatedly. Glossaries speedily retrieve this and other verbose text with a single keystroke.

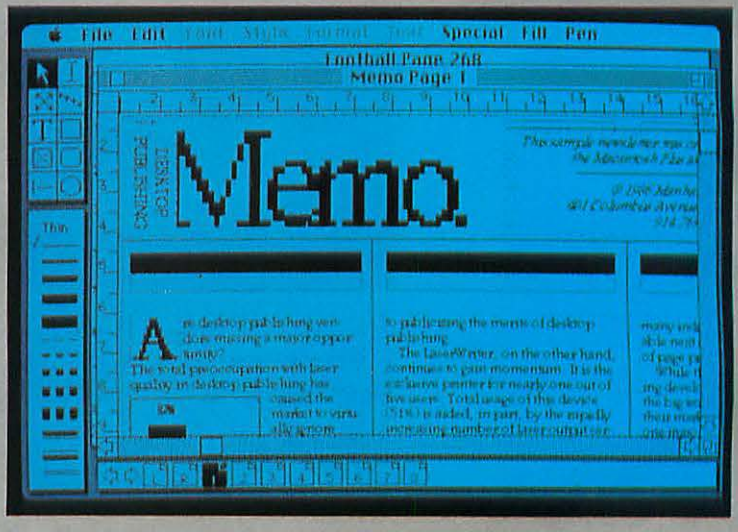
Just finished a great novel in Microsoft® Word or MacWrite™? No problem, import these files as formatted.

Ready,Set,Go! gives you the runaround.

When you're ready to add graphics, Get Picture retrieves your MacDraw,™ MacDraft,™ MacPaint,™ FullPaint™ – or other compatible art – quickly.

Now drop a picture block on any text area. Spontaneously, the text reconfigures itself to snake around your graphic – an incredible timesaver.

Use this technique to wrap text around large capitals or graphics created with built-in drawing tools.

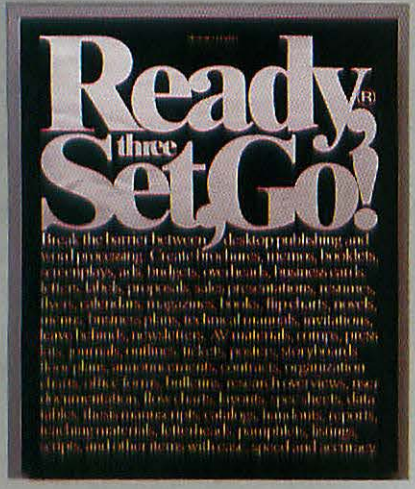


Windows with a view.

Open several windows to combine cut-and-pasted elements from many different documents.

You'll be the Dali of desktop publishing, splashing text and graphics throughout several works at once. Not just productive – but prolific, too.

And you won't mind doing windows using Ready,Set,Go!'s five fascinating views – which include full-page editing.



Remarkable design features.

Ready,Set,Go! also kerns, letterspaces or shifts text up or down with a single keystroke. Not sold yet? How about direct PostScript™ programming for stunning effects? And an unlimited page capacity with automatic page numbering, time-and-date stamping and left/right master pages?

We're sure that no other program even approaches Ready,Set,Go! in design power, text entry flexibility, ease of use, execution speed or price: only $295. While words cannot adequately describe this revolutionary program, our video demo can. For $15 we'll send you an informative videotape to demonstrate Ready,Set,Go!'s versatility. To order Ready,Set,Go! or the videotape call us at **800-634-3463** (in New York call 914-769-2800). Or visit your nearest dealer.

FullPaint is a trademark of Ann Arbor Softworks. MacDraft is a trademark of Innovative Data Design Inc. Macintosh, MacDraw, MacPaint and MacWrite are trademarks licensed to/of Apple Computer Inc. Microsoft is a registered trademark of Microsoft Corp. PostScript is a trademark of Adobe Systems Inc. Ready,Set,Go! is a registered trademark of Manhattan Graphics. Ready,Set,Go! requires a 512K Macintosh.

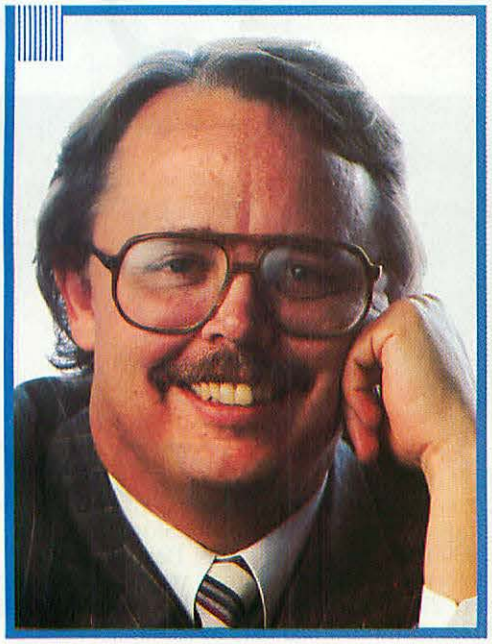
Manhattan Graphics.

401 Columbus Avenue, Valhalla, NY 10595

Circle 2 on reader service card

David Bunnell

Hypervisions



As hypertext and hypervideo usher in a new age of information literacy, all the world's an electronic stage—and you're the media director.

In the next two or three years, more data will be generated and disseminated than in all of recorded history.

Not only is the volume of information increasing at a staggering clip, but the rate of increase is also accelerating phenomenally. The way it's going, our existing knowledge base will be doubling and tripling before we can even say "on line."

This is not just a megatrend. It's a maxifact. And it's going to be one of our biggest headaches in the coming century if we don't get our information act together soon.

The problem is not just the quantity of data. It is *accessibility.* How do you deal with all this information? How do you absorb it? How do you make sense of it? How do you structure it? Most important, how do you access it?

Clearly, the current media forms—television, radio, print, and even electronic publishing—are not equipped to deal with this information onslaught on their own.

What we need is an information medium that will bridge the gaps between the existing media and provide us with ways of coping with massive amounts of information. CD ROM and the development of other broadband publishing technologies will, I believe, constitute this new medium.

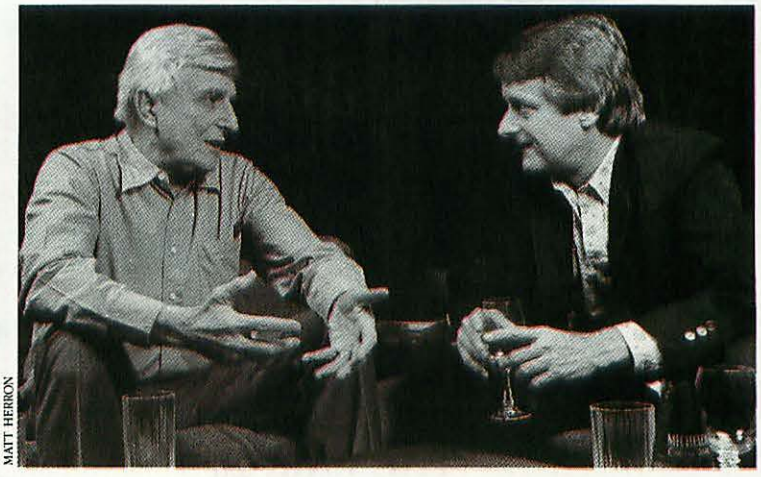
Although it's impossible to predict how fast these technologies will evolve, there is no question in my mind that we are on the verge of a new era of information handling.

Because broadband electronic publishing—which allows us to mix text, sound, graphics, and video—is a new medium, we will need new information-handling tools to help us grapple with the otherwise indecipherable text of the future.

In my opinion we have one adaptable tool right now. You might even be familiar with it. It's "hypertext."

The concept of hypertext was originally developed back in the sixties by personal computer visionaries Ted (Project Xanadu) Nelson and Doug Engelbart, the genius behind the idea of windows and the mouse. Nelson defines hypertext as nonsequential writing.

"We've actually been doing it for years," he says. "We've been speaking hypertext all our lives and never knew it. It's essentially nonlinearity of speech. The fact that pages have to be numbered because of the way books are built has led us into thinking that things need to be in sequence. But the best expositions are those you pursue yourself, nonsequentially."



MATT HERRON

Visionaries Doug Englebart (left) and Ted Nelson, who first developed the concept of hypertext in the sixties, speak about today's movement toward nonlinear use of information.

Money



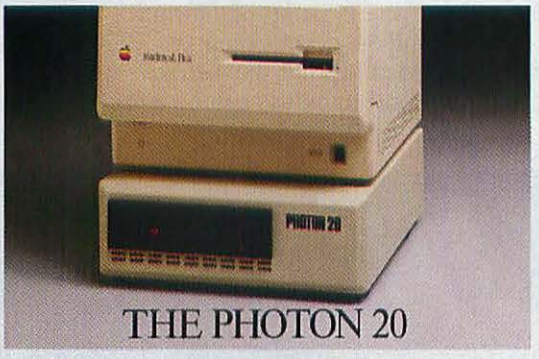
DIG IN.

Here at Warp Nine, we manufacture Macintosh products that excel in 3 areas: Price, quality and price. You see, we refuse to sell through computer stores. Instead, we sell direct. Saving you about 40%.

But when we left out the dealer's mark up, we didn't sacrifice the quality. For example, every Warp product comes with our Quality and Assurance Report detailing each step of production, signed by the person responsible for that step.

Our commitment to quality continues with our special fans. They keep our drives cool as a cucumber. Some manufacturers think fans are too expensive to install. That's why you can fry an egg on their drives. And Warp drives are delivered preformatted, ready to go. Just give them some juice and take off.

So if you're hungry for some big savings, roll up your sleeves, lick your lips and feast your eyes on these prices. They're awfully easy to swallow.



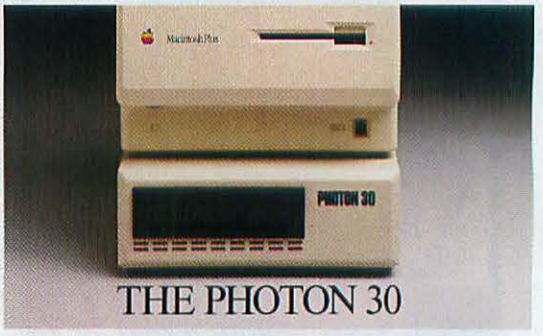
THE PHOTON 20

A 21Mb external SCSI hard drive. Store as much information as fifty-two 400K floppy disks. HFS and MFS compatible. Supports all your Macintosh software. Can daisy chain up to seven SCSI devises. MacPlus **$589.00** ***512K** with our PlusPort. **$745.00**

$589.00

THE WARP 20

A 21Mb internal SCSI hard drive for the MacPlus or 512K. The quiet, powerful cooling fan helps insure optimal operation. Our intelligent design and step-by-step manual make installation very straightforward regardless of your technical expertise. MacPlus version. **$849.00** ***512K** with internal PlusPort. **$849.00**



THE PHOTON 30

Our 31Mb external SCSI hard drive. Faster access and 50% more storage capacity than a 20Mb. Stores as much as 9300 double-spaced pages. Best of all, the Photon 30 is priced less than you'd pay for nearly every 20Mb drive on the market. MacPlus **$795.00** ***512K** with our PlusPort. **$945.00**

$795.00

COMPARE US.

	Photon 20	Data Frame	Apple HD20 SC	Hyperdrive FX-20
Fan	Yes	No	Yes	Yes
Avg. Seek Time	65	65	65	65
SCSI Compatible	Yes	Yes	Yes	Yes
HFS Compatible	Yes	Yes	Yes	Yes
Internal/ External	External	External	External	External
Price	**589.00**	1095.00	1299.00	1195.00



THE PHASER 800

Whisper-quiet 800K double sided disk drive. Compatible with 128K, 512K, MacPlus and HFS. No hardware or software modifications necessary. Distinguishes 400K and 800K diskettes and will read and write to them accordingly. Features push button and automatic electronic ejection. Cable included. All models. **$199.00**

$199.00

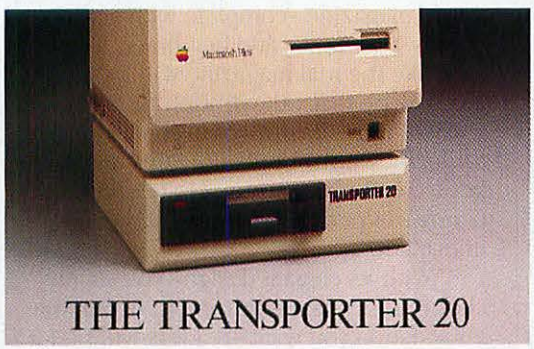
Hungry?

INTRODUCING OUR SOFTWARE PRODUCTS.

The Fullback—Called the best back up program for the Mac. Backs up text and graphics from your hard drive to floppy disks very quickly. Volume back up (everything), file-by-file and incremental (last changes). **$39.95**

Print Sprint—A print spooler. Allows you to work on your Macintosh while your Imagewriter is printing. **$29.95**

Special Bundle Price—Buy any Warp product and get both **The Fullback** and **Print Sprint** on one disk. **$39.95**



THE TRANSPORTER 20

A 20Mb SCSI tape drive. Back up and restore the valuable data from your hard drive onto cassette tapes. Ensures safekeeping of all your applications and data (both text and graphics). Features volume, file-by-file, and incremental back up. With the incremental feature, back up daily files in as little as three minutes. MacPlus version. **$795.00** **$795.00**
*512K with our PlusPort. **$945.00**

TWO NEW MEMORY UPGRADES FOR THE MACPLUS.

Simply clip on with no modifications necessary. Both the **DataRam** and **MonsterRam** are fully compatible with all your software. Both come with our internal piezo electric fan.

DataRam—2Mb upgrade. Expandable to 4Mb. **$259.00**

MonsterRam—2.5Mb upgrade for a MacPlus with an internal hard drive. **$545.00**

* The Warp Nine PlusPort adapter puts a MacPlus type SCSI port on the back of your Mac 512K. It is included with each 512K price. This adapter allows you to connect our SCSI hard drive and tape back up to your 512K and transfer data at the high speed that the MacPlus does. No modifications. No soldering. Just Clip on. Very simple to install.

Circle 439 on reader service card



THE PHOTON 2001

A 21Mb SCSI hard drive and a 20Mb tape back up in one convenient unit. Store data on the hard drive then back it up onto your tape. Will back up a full 20Mb of data in under twelve minutes or changes in your files in as little as three minutes. Priced over $1,000 less than the AST 2000. MacPlus version. **$1495.00** **$1495.00**
*512K with our PlusPort. **$1645.00**

IF YOU'RE NOT HAPPY, WE'RE NOT HAPPY.

If you don't absolutely love your Warp product after 30 days, send it back and receive a full refund. What's more, if you have problems with your drive within 90 days, it's completely covered by our warranty. Return it and we'll send you a brand new unit. Immediately. And if you'd like a full one-year warranty, that's available for the asking, too.

All our products are also backed by a hand-picked technical support team. If you run into problems, just give them a call. Toll free. Each of them is a Mac expert, and they're here to answer your questions.

EASY TO ORDER. FAST DELIVERY.

Call any of these toll free numbers with your questions or an order. **1-800-654-5294** or **1-800-328-6795 ext. 433**. In MN, call collect **612-426-9769.**

We accept MasterCard or C.O.D. orders. If you'd like a copy of our free brochure, send in this coupon along with your mailing address.

MasterCard VISA

NAME_____

ADDRESS_____

CITY_____ STATE____ ZIP_____

DAY PHONE_____

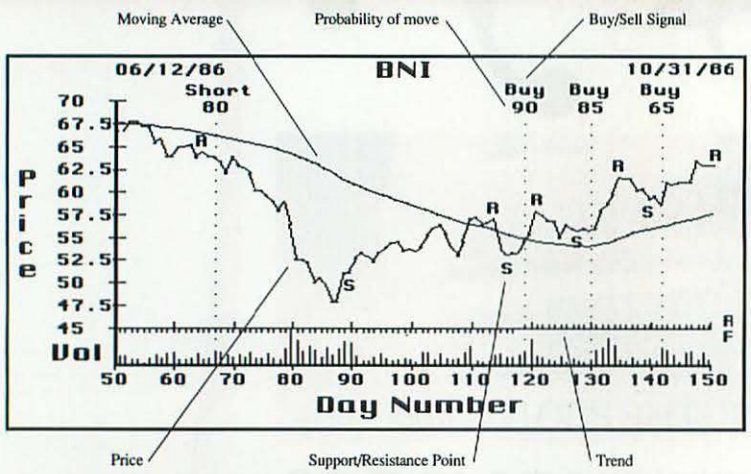
EVE. PHONE_____

WARP NINE ENGINEERING INC.

1751 W. County Road B. Suite 107, St. Paul, Minnesota 55113

Warp Nine, Warp 20 and Photon 30 are trademarks of Warp Nine Engineering Inc. Macintosh and HD 20 SC are trademarks of Apple Computer, Inc. Dataframe is a trademark of SuperMac.

Profit from the moves most traders miss.



Profitable Buy/Sell signals with about 80% accuracy.

The Right Time™ computerized trading system was developed by an expert portfolio manager for his own personal use. Over the last six years of in-market use the software has been perfected and made easy to use. Now it's available for any smart trader who wants to make quick profits from quick decisions.

Not only is **The Right Time™** the best decision support system ever devised for traders, it's the only software that analyzes volume/price, support/demand, and global market trends - all at the same time.

Amazingly Precise.

The Right Time™ programs run on IBM (and compatible), Apple II and Macintosh personal computers. The software is easy to use, amazingly precise, and very, very clear in its signals.

It's also fast. If you decide to download from Dow Jones with a modem, you'll retrieve and update signals for 120 stocks or 25 commodities or 5 indexes in less than five minutes per day. What's more, you can play "What If" games with individual stocks, commodities, indexes and options, with results in about one second.

Results: Winning Trades.

There are three **Right Time™** programs available to help you make the right decisions.

Stock Program: *"The program is amazing. Profitable trades have developed out of nowhere!"* M.C., brokerage firm vice president.
Index Program: *"Computer whiz finds program for success. This program really works."* A.G. financial columnist.
Futures Program: *"Very profitable with 4 out of five winners. Paid for itself the first trade."* B.L., investment advisor.

For More Information.

Call **(213) 275-0208** today for a brochure, or place an order with a 30-day money back guarantee. Each program costs **$399**, any two **$599**, and all three **$899**. (downfeatured versions available for $249)

T.B.S.P. INC.
The Better Software People
8821 Alcott St., Los Angeles, CA 90035

IBM International Business Machines Inc. Apple II Macintosh Apple Computer Inc. Dow Jones Dow Jones Co.

Circle 639 on reader service card

David Bunnell

As Ted Nelson likes to point out, he never reads a book straight through from the first page to the last. He starts in the middle, then flips to the end or the beginning. He claims that he retains more information that way. I've tried it myself, and I think it's true.

Hyperreading is not exactly an easy process to learn. For years, you've been a "sequencer," and suddenly you have to flip back and forth. It's like learning to read all over again.

Recently, we at PCW Communications took our first step in hyperpublishing when we used OWL Software's *Guide* program to produce an experimental hypertext edition of parts of the January issue of *Macworld* on disk, as well as a similar hypertext issue of *PC World*.

Guide, created by software entrepreneur Alan Boyd, is an ideal hypertext maker because it allows you to organize database information in a visual way. For example, what appears on the *Macworld* editor's computer screen here can represent the page as it will appear in *Macworld* magazine—complete with actual photos, type fonts, and headlines. It can look like the real magazine will look.

I hope that we will soon be able to put a whole year's worth—or even more—of a magazine onto a single CD ROM disk. The key to reading these giant issues will be *Guide*'s hypertext method of accessing information.

With its elegant design—you simply click mini-icons, or buttons, to obtain the information you want—readers will find it a much more friendly and intuitive way to search for information than the traditional method of keyword searches.

Future hypermagazines will be much more impressive than these *Macworld* and *PC World* prototypes.

First of all, it's obvious that simply providing translations of publications from paper to electronic form is not the optimum use of this new medium. We are going to very quickly find ways to enhance the existing information.

For example, a future hypertext issue of *Macworld* might contain useful databases such as directories of personal computer companies with their addresses and phone numbers, lists of computer stores and computer clubs, and so on.

(continues)

For Programmers. The Most Productive Development Utility Ever Created.

Say, for example, you have three possible solutions to the same problem. With Prototyper™, you can quickly build all three. From menus, t buttons, to the shape of the cursor.

In a matter of hours, you're interacting with each of your options – as i they were real Macintosh applications Soon, you are able to decide on the best solution.

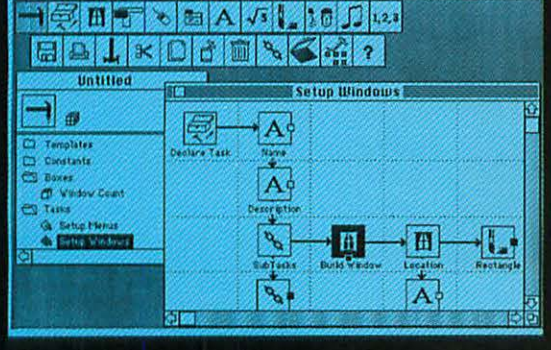
Without writing a line of code.

Without cracking open *Inside Macintosh*.

Prototyper™ saves your most precious resource – time. Before Prototyper™, it took months to produc a working user interface. New ideas often meant code was scrapped.

Details you have to monitor when programming are managed for you by Prototyper™. Even mouse tracking an event loops are handled automatically

So whether you're a sophisticated developer or new to programming, you'll be amazed at how Prototyper™ increases your productivity.



Prototyper™

SmethersBarnes

For more information, call 1·800·237·361
In Oregon call 503·245·7270

Prototyper and the SmethersBarnes logo are trademarks of SmethersBarn
Macintosh is a trademark licensed to Apple Computer, Inc.

Circle 438 on reader service card



Desktop Publishing is one of today's most exciting computer applications. And PageMaker® has certainly been a major contributor to this revolutionary technology. It has allowed the user to assemble newsletters, brochures, data sheets and the like of near typeset quality. Unfortunately, however, PageMaker also provides the user with severe limitations on the speed and design of a page layout. The user is pretty much restricted to a rigid column format and rectangular images. While circular or irregular images may be incorporated into a layout, it is a painfully time-consuming task to run the copy around the image. So the final product lacks a truly professional look.

PageMaker® is a registered trademark of Aldus Corporation. Target Software™ and Scoop™ are registered trademarks of Target Software, Inc.
MacPaint™ and MacDraw™ are registered trademarks of Apple Computer Inc.

On the other hand, a Scoop™ layout would do credit to an outstanding graphics designer. Like PageMaker, Scoop enables the user to produce all kinds of documents at considerable savings. Newsletters, pamphlets, catalogues, flyers and direct mail pieces may all be turned out very quickly and conveniently.

And that's not all. Scoop also allows the user to set the text to conform to the dimensions of any object. With a click of the mouse, text automatically wraps around the most irregularly shaped graphic, including all sorts of images from both MacPaint™ and MacDraw.™

Scoop.™ Coming May 1. We're going to run circles around PageMaker.®

More than that, Scoop lets you create and manipulate both the text and the graphics. Unlike PageMaker, there's no need to develop text and graphics separately and then have to combine them. And Scoop has so many more special features, too. It is truly the first great advance in Desktop Publishing since PageMaker.

The fact is, Scoop will run rings around its predecessor. Get the Scoop from your software dealer beginning May 1st. Or you can call Target Software™ right now for more information at 1-800-622-5483; in Florida, 305-252-0892. Or, write 14206 S.W. 136th St., Miami, FL 33186.

Scoop™

The creative publishing program from Target Software

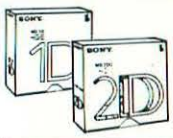
This advertisement created with a Macintosh Plus, Apple Laserwriter and Scoop™ **Circle 478 on reader service card**

An investment in Sony disks could improve your cash flow.

FREE Illinois State Instant Lottery Ticket.

*You get a FREE Illinois State Instant Lottery Ticket with every 100 Sony boxed disks purchased from this ad.

SONY® 3½ Disks Boxed in tens



	50+	100+
3½" SS	1.17	1.14
3½" DS	1.68	1.65

SONY MAC • PAC
Packaged in fifties



	100+	400+
3½" SS	1.07	1.02
3½" DS	1.39	1.32

Labels available —Call today!

FREE ILLINOIS STATE LOTTERY TICKET* FREE

Nashua



Boxed in tens
3½" Single Sided **1.04** ea., 100+
3½" Double Sided **1.32** ea., 100+

wabash DATATECH DISKETTES
Boxed in tens



- Lifetime warranty
- 100% error free
- Labels, write protects and envelopes

3½" SS	3½" DS
.99 each, Qty. 100+	1.29 each, Qty. 100+

INCOMM Turbo External Modem
2400/1200/300 BPS
Only... **$299**
☐ Includes MAC Cable
☐ With Quicklink Software for 3½"

SURGE SUPPRESSORS
6-Outlet



$9.95
- Normal and common mode suppression
- Low let-thru voltage

CONTROL CENTER
- Upfront, individual switching for up to five devices
- Total MAC compatibility
- Built-in circuit breaker

$49.95



RIBBONS
*Sold in sixes



APPLE IMAGEWRITERS
Black $2.35
Color $3.05
(one each red, green, blue, brown, purple, yellow)

Other ribbons available. Our Flex operators will find the one you need—call today!

CALL TOLL FREE
7 to 7 Central Time
10 to 3 Saturdays

1 800 USA-FLEX
(1 800 872-3539)
In IL 1 800 FOR-FLEX (1-800-367-3539)

USA FLEX
135 N. Brandon Drive, Glendale Heights, IL 60139

TERMS: Shipping/handling additional. Minimum order $100. Visa, Mastercard and Prepaid orders accepted. Corporations rated 3A2 or better and government accounts are accepted on a net 30 basis. COD orders add an additional $5.00 special handling charge, APO, FPO, AK, HI & PR orders add an additional 5% to the total order amount to cover PAL and insurance. No Sales tax outside of Illinois. All other countries add 20%.

Circle 134 on reader service card

David Bunnell

We will also be able to publish lengthy, in-depth tables of products that would not otherwise appear in conventional magazine format because of space limitations.

In due course we will be adding graphics animation to our hypermags. We will be able to show graphs that move and grow, for example, to demonstrate trends. Eventually, we will even have true motion video and film images stored on optical disks or other advanced memory devices.

One of my fondest dreams—or hypervisions, if you will—is one that might not come about until the next century. I like to call this notion hypervideo. It will handle incredible quantities of information. If you can organize words and pictures and charts and photos in hypertext publications, then imagine what you could do with hypervideo.

To start with, I'd love to store all my VCR movies on one giant hypervideo disk that might contain hundreds or even thousands of films.

I could then hyperview anything I wanted from my film collection—say, battle scenes, love scenes, or comedy scenes. I could study the careers of favorite stars like Marilyn Monroe by selecting individual scenes in which they appeared, or replaying entire films. I could program my own anthologies.

I would probably even be tempted to buy hypervideo anthologies compiled by noted film critics like Pauline Kael. This technology would create a whole new genre of film criticism.

As an extension of this single hypervideo concept, there would be a single device in my home that would capture all the radio, television, and digital information signals (like computer programs broadcast on FM bandwidths) that are beamed to my antenna or satellite dish.

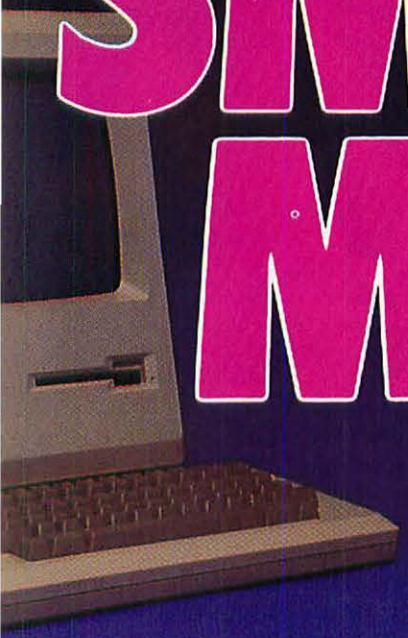
All this data would be analyzed by an expert system custom-designed for me. This electronic genie would have come to know me and my special interests over the years. In fact, it might even have helped to develop and shape my interests and sensibilities.

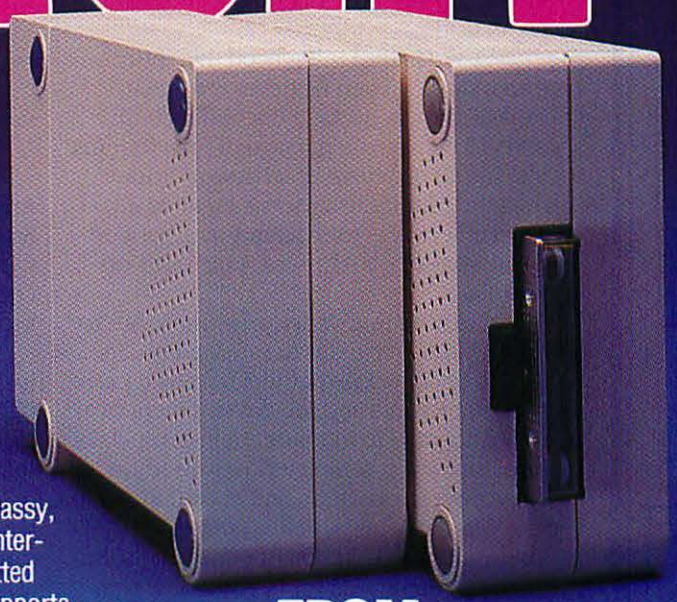
This personal genie would have the task of compiling all the information I might want and then creating menus and indexes or tables of contents, so I could easily make the ultimate decision about

(continues)

New for the Mac Plus!

SMALL BUT MIGHTY!





CIRRUS 40FD
40MB FAST DISK

Here's hard disk performance for the MAC PLUS that's as fast as it comes! The CIRRUS 40FD delivers 28ms seek time and 40MB of storage in a small, classy, package that's feature rich. Two SCSI interfaces. Auto park. Locking heads. Formatted and ready to run. The CIRRUS 40FD supports password protection, multiple volumes on a single disk and can treat multiple hard disks as one volume. That means you can daisy chain up to 7 CIRRUS hard disks and treat them as one. The CIRRUS 40FD is cool, quite, reliable.

Also available:

CIRRUS 21D 21MB Hard Disk
CIRRUS 30D 30MB Hard Disk
CIRRUS 60D 60MB Hard Disk

FROM

$599

CIRRUS 40T
40MB TAPE BACKUP

This small wonder can do everything the CIRRUS Hard Disks can do. In fact it operates identically. That's why it's so incredibly easy to use. The CIRRUS 40T gives you image and file by file backup and restoration. You can even restore file by file from an image backup. Each system includes two SCSI interfaces. Tapes are formatted and support volumes and password protection. And, there's full data correction on the tape. Cool. Quiet. Diminutive. Your data is safe with the CIRRUS 40T.

BIG-LEAGUE BACKING FOR POWER USERS

Here's the power...power users want! We build high quality, high performance equipment designed to meet the needs of serious users. So if you're a power user now, or ready to become one, call or write today for more information about the CIRRUS 40FD, 21D, and 40T. And, don't forget to ask about our first class warranty and service protection. We're seasoned experts in mass storage with more than 15,000 systems installed in the field. And, we stand behind every product we sell.

CALL TO ORDER TODAY: 800-522-2237 • In Oregon and Alaska call: 503-626-6877
VISA & MASTERCARD accepted • OEM & Dealer inquiries welcome

Kamerman Labs

7861 SW Cirrus Drive, Beaverton, OR 97005 • 503-626-6877 • Telex 501 886

Mouse not included. Specifications and prices subject to change without notice. Mac Plus is a registered trademark of Apple Computers, Inc. Copyright © 1986 Kamerman Labs.

Circle 599 on reader service card

FREE $20 LIFETIME MEMBERSHIP
SOFTWARE LIBRARY

RENT

Art a la Mac	$8.99
AMS Gen. Ledger	29.25
BatteryPack	8.99
Educational Progs. (Most)	8.99
Desk Design Vol. 1	10.50
DrawArt	8.99
MultiUserHelix	95.50
Easy 3D	19.80
Experlogo	26.24
Fontographer	54.51
Fluent Fonts	8.99
FileMaker Plus	38.94
Graphics Magician	11.37
Hayden Speller	10.79
HFS Locator Plus	8.99
LightspeedC	26.25
Microsoft (All)	Call
MacSpell+	13.36
MacProject/MacTerminal	Call
More	38.94
MacPublisher II	34.25
MaxRam MaxPrint	8.99
MyDiskLabeler	8.99
OverVUE 2.0	35.75
PictureBase	10.49
PowerMath	13.79
Quick & Dirty Utils	8.99
Rags to Riches GL,AR,AP Comb.	64.93
Silicon Press	10.52
StatView	26.21
StatWorks	18.75
Spellswell	8.99
Ragtime	53.72
Tempo	13.52
TurboCharger 2.0	9.12
Top Desk	8.99
II in A Mac	13.49

650 More to choose from

MacOpener™ $14.36
Sony Disks: SS-$1.28 • DS-$1.92
Ribbons: Blk-$2.75 • Col-$3.75
Lightning 2400 Baud $310.80

Try It First
Rental Applies To Purchase

Our list of satisfied clients includes: NASA • ABC News • Procter & Gamble • Florida Power & Light

Orders Only
1-800-847-5775
Customer Service & Texas Residents
1-713-529-1100
P.O. Box 66754•Houston, Tx. 77266

VISA Checks Welcome MasterCard

David Bunnell

what I wanted to look at. It could even create video previews of all this collected material for my viewing-selection pleasure.

Why stop there?

The genie could desktop-publish a personal *TV-Movie-News-Info Guide* for its owner's reference. If you're interested in, say, the aerospace industry, your genie would make sure that you had all the latest bulletins and news flashes on that subject. Now, that would make for an interesting hyperworld, wouldn't it?

But back to the present for a moment.

If hypertext is going to effectively transform the way we structure and deliver information—if it really is the tool we need to help us deal with the massive amount of information that keeps doubling and tripling—then we'll definitely have to hone our hyperskills.

D. W. Griffith influenced the entire film industry when he developed techniques such as his fade-out and fade-in edits to convey the passage of time in films like his classic *Birth of a Nation*. Prior to that, the film industry was a creative infant. The camera was used simply as a static recording device to capture stage plays on celluloid.

Griffith's innovative techniques are to film what hypertext is to information. In fact, there is a close parallel between early motion pictures and the development of a new information medium. In its early days, film, too, was a completely new method for conveying information and entertainment.

Similarly, hypertext is going to challenge a new generation of publishers, filmmakers, and broadcasters. Anyone and everyone who is involved in the information/communications business will have to become hyperliterate.

The question is, how are we going to decide the standards of this new information medium? Who is going to set the trends? What technical information do we need to exchange in order to establish the ground rules?

The hyperpublisher of tomorrow is going to need a wide variety of media skills—filmmaking, magazine publishing, news publishing, and database publishing, to name just a few.

Meanwhile, we need a place or an organization where people from all parts of the information industry can come together to exchange ideas.

The only such development on the horizon that I'm aware of is the new Information Institute being created by Sat Tara Singh Khalsa, the American Sikh software wizard who founded Kriya Systems and created the best-selling *Typing Tutor 3* program.


DARYL PITT

Software developer Sat Tara Singh Khalsa is creating the Information Institute, "the first interdisciplinary forum for all information technologies." The launch will be this year in Aspen.

According to Sat Tara, his nonprofit Information Institute is "the first interdisciplinary forum for all information technologies." He plans to launch it this year in Aspen, Colorado.

"We're seeing enormous communications and information conglomerates being built up," he says, "but there is no comfortable fit between media. CBS, for example, has TV, radio, computer software, and books. But each is run as a separate entity. While they all exist under one corporate umbrella, they have an uneasy relationship."

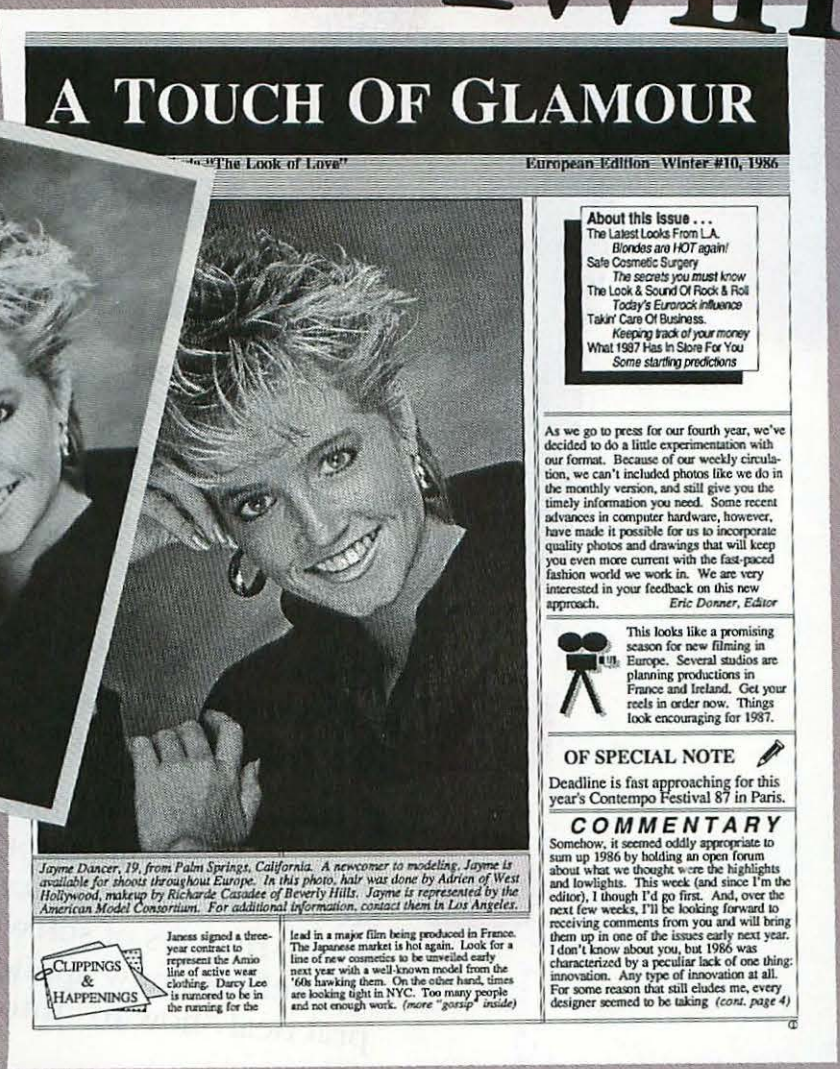
By exchanging ideas, new ideas will emerge for dealing with the diverse entities. Sat Tara's Information Institute can be a place where the relationship between such media will be worked out.

The ultimate goal, of course, is for all of us to be up to speed with our burgeoning twenty-first-century information technologies.

Better buckle up to our keyboards. It's time to break through the information barrier. □

Identical Twins?





A TOUCH OF GLAMOUR

...to "The Look of Love" — European Edition Winter #10, 1986

About this issue . . .
The Latest Looks From L.A.
Blondes are HOT again!
Safe Cosmetic Surgery
The secrets you must know
The Look & Sound Of Rock & Roll
Today's Eurorock influence
Takin' Care Of Business.
Keeping track of your money
What 1987 Has In Store For You
Some startling predictions

As we go to press for our fourth year, we've decided to do a little experimentation with our format. Because of our weekly circulation, we can't included photos like we do in the monthly version, and still give you the timely information you need. Some recent advances in computer hardware, however, have made it possible for us to incorporate quality photos and drawings that will keep you even more current with the fast-paced fashion world we work in. We are very interested in your feedback on this new approach. *Eric Donner, Editor*

This looks like a promising season for new filming in Europe. Several studios are planning productions in France and Ireland. Get your reels in order now. Things look encouraging for 1987.

OF SPECIAL NOTE

Deadline is fast approaching for this year's Contempo Festival 87 in Paris.

COMMENTARY

Somehow, it seemed oddly appropriate to sum up 1986 by holding an open forum about what we thought were the highlights and lowlights. This week (and since I'm the editor), I though I'd go first. And, over the next few weeks, I'll be looking forward to receiving comments from you and will bring them up in one of the issues early next year. I don't know about you, but 1986 was characterized by a peculiar lack of one thing: innovation. Any type of innovation at all. For some reason that still eludes me, every designer seemed to be taking *(cont. page 4)*

Jayme Dancer, 19, from Palm Springs, California. A newcomer to modeling, Jayme is available for shoots throughout Europe. In this photo, hair was done by Adrien of West Hollywood, makeup by Richarde Cazadee of Beverly Hills. Jayme is represented by the American Model Consortium. For additional information, contact them in Los Angeles.

CLIPPINGS & HAPPENINGS

Janess signed a three-year contract to represent the Amio line of active wear clothing. Darcy Lee is rumored to be in the running for the lead in a major film being produced in France. The Japanese market is hot again. Look for a line of new cosmetics to be unveiled early next year with a well-known model from the '60s hawking them. On the other hand, times are looking tight in NYC. Too many people and not enough work. *(more "gossip" inside)*

Look closely.

The image similarity is uncanny. And beautiful!

The photo on the left is an original black and white print. The one on the right is a reproduction created with the remarkable Abaton Scan 300 optical scanner and printed out on a 300-dot-per-inch laser printer.

Notice the detail. And how the digitized copy retains the tones and textures of the original.

That's the consistent quality you get from the Abaton Scan 300. Whether you're using photographs, illustrations, diagrams or just about anything else that will fit in an 8½ × 14 or smaller image area.



The Abaton Scan 300 works with the Apple® Macintosh™ or IBM® PC. Additional hardware for printing and page composition may be required.

And you'll always get the same results you see above.

The Abaton Scan 300 automatically turns continuous-tone photographs into publication-quality halftones—with up to 32 levels of grey scale. Our G-Scan™ software gives you an added level of flexibility, including user-definable scaling, brightness and contrast, as well as complete image-editing capabilities.

And when used in conjunction with popular page composition programs—such as PageMaker™—you'll be able to add a new level of graphic precision and realism to everything you produce.

Contact your Abaton dealer (authorized IBM, Compaq or Apple dealer) today. Or write us and we'll put one in touch with you.

The Abaton Scan 300.

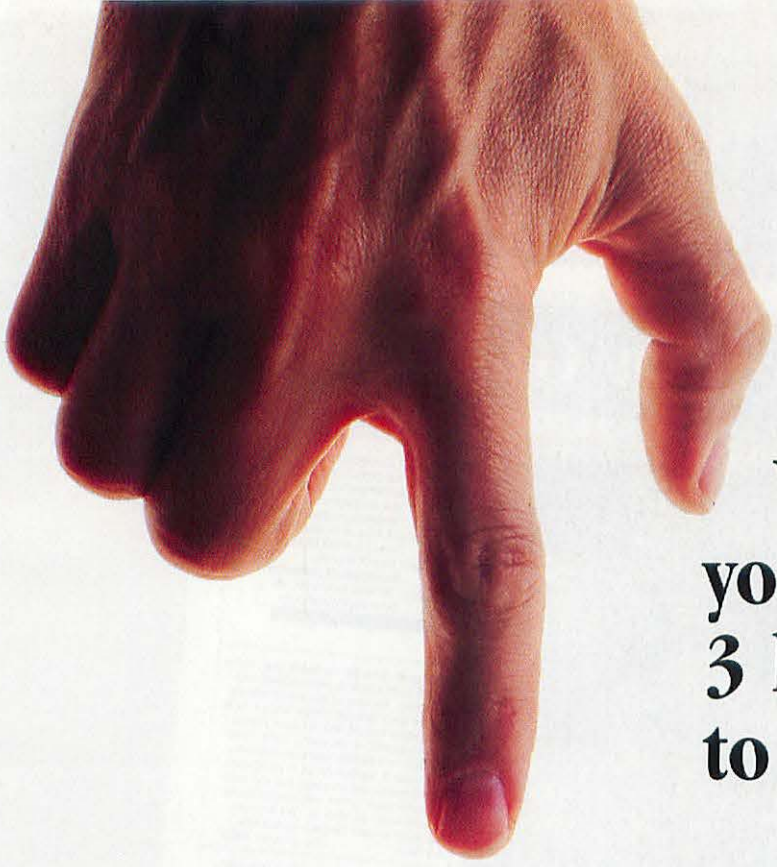
It's the easiest way to make two of a kind.

Abaton

Abaton Technology Corporation
7901 Stoneridge Drive, Suite 500
Pleasanton, CA 94566
(415) 463-8822

Apple is a registered trademark and Macintosh is a trademark of Apple Computer, Inc. IBM is a trademark of International Business Machines Corporation. PageMaker is a trademark of Aldus Corporation.

Circle 622 on reader service card



You've put your finger on 3 key reasons to subscribe...

1 **SAVE OVER $23 A YEAR!** Your subscription means a handsome savings for you—almost 50% off the cover price.

2 **GET THE MOST FROM YOUR MAC!** Your money-saving subscription also insures a steady flow of the practical information you want—reviews of software and hardware you can rely on, new applications, techniques, and practical "how-to" tutorials.

3 **GET THE MACWORLD GUARANTEE!** We're so certain you'll get what you need—and more—from MACWORLD, we guarantee it! If for any reason you're not satisfied with MACWORLD, just let us know, and we'll promptly refund the cost of your subscription for every unmailed issue.

MACWORLD

The Macintosh™ Magazine

Save

$23.40
off the
~~$47.40~~
cover price

SUBSCRIBE NOW

☐ **YES!** Please send me one year (12 monthly issues) of *Macworld* for only $24. I'll save $23.40 off the annual cover price of $47.40, a savings of almost 50%. (That's $6 off the regular subscription rate of $30.)

SAVE EVEN MORE!
☐ $37.90 for 2 years (24 monthly issues)
☐ Payment enclosed ☐ Bill me later

Name _____ (Please print your full name)
Company _____
Address _____
City, State, Zip _____

Please allow 6 to 8 weeks for delivery of your first issue. Offer good in the U.S. only. Offer expires August 31, 1987.

4BD99

MACWORLD
The Macintosh™ Magazine

Order Now to Take Advantage of These Special Savings.

Call TOLL FREE: 800/524-3200

Visa and MasterCard Accepted!

SUBSCRIBE NOW

☐ **YES!** Please send me one year (12 monthly issues) of *Macworld* for only $24. I'll save $23.40 off the annual cover price of $47.40, a savings of almost 50%. (That's $6 off the regular subscription rate of $30.)

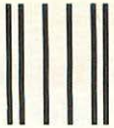
SAVE EVEN MORE!
☐ $37.90 for 2 years (24 monthly issues)
☐ Payment enclosed ☐ Bill me later

Name _____ (Please print your full name)
Company _____
Address _____
City, State, Zip _____

Please allow 6 to 8 weeks for delivery of your first issue. Offer good in the U.S. only. Offer expires August 31, 1987.

4BD99

MACWORLD
The Macintosh™ Magazine



NO POSTAGE
NECESSARY
IF MAILED IN
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS PERMIT NO. 1262 BOULDER, CO

POSTAGE WILL BE PAID BY ADDRESSEE

Macworld
Subscription Department
P.O. Box 51666
Boulder, Colorado 80321-1666





NO POSTAGE
NECESSARY
IF MAILED IN
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS PERMIT NO. 1262 BOULDER, CO

POSTAGE WILL BE PAID BY ADDRESSEE

Macworld
Subscription Department
P.O. Box 51666
Boulder, Colorado 80321-1666



LOOKING FOR A GREAT IDEA?

Brainstorm™

THE LAST MEMORY UPGRADE YOUR MAC WILL EVER NEED

Finally, the unprecedented power of an open architecture Mac. The ultimate Mac enhancement, now made possible by second generation memory technology, Brainstorm is the 1, 2, and 4 meg memory upgrade for your 128K or 512K Mac. Brainstorm, multi-meg power for your Macintosh.

Productivity Plus

Revolutionize your productivity with Brainstorm. Run all your favorite applications on a RAM disk up to ten times faster. Create your own integrated software and work with muliple applications simultaneously. Free yourself from disk swaps and needless restrictions on document size. Achieve full performance from high-flying software like Excel, Jazz, or PageMaker. Brainstorm, versatile power for your Macintosh.

Total Compatibility

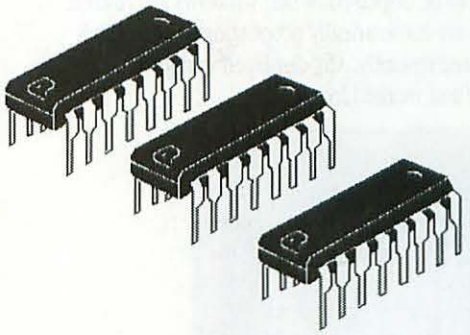
Brainstorm is accomodating. It runs 128K, 512K and Mac Plus software. With no awkward boot-up disk. Brainstorm is extraordinarily tiny. So it even fits beneath HyperDrive, unlike any other multi-meg upgrade. The built-in ROM Enhancer™ allows you to switch back to 512K at the click of a mouse. And Brainstorm works with all Apple ROMs and the new 800K drive. Brainstorm, universal power for your Macintosh.

A Real PowerSaver

Brainstorm's innovative design incorporates a custom PowerSaver chip. This allows the two meg, for instance, to run cooler than a 128K. Less heat and no overloading of your power supply. And without a noisy fan. Brainstorm, safe power for your Macintosh.

Power Within Reach

State of the art manufacturing allows Mac Doctor to deliver Brainstorm at absurdly low prices. $379 for 1 meg from 512K, or $428 from 128K, for example. Fully installed and ready to perform, with a one year warranty, optional Performance Software, and a readable user's guide. Brainstorm, value for your Macintosh.



... AND SOME MORE GREAT IDEAS

The Mac Doctor 512

An industry standard 512K upgrade with a built-in future. Upgrade later to a BrainStorm and get an $89 discount. Gold sockets are standard as well as a complete 120 day warranty. Compatible with all Mac software and with internal hard disks. Performance Software included free **$169**

20 Meg Internal Drive

Imagine having 20,000K available on your disk. Convert your Mac into a power work station with this superfast name brand internal 20. 800K external also available.

Mac Doctoring

Mac sick? Mac Doctor is the digital service specialist. Component level repair at honest prices. Many common problems repaired for under $50. Call for estimates.

- **For information call (415) 964-2131**
- **Ask about our No Down-time Service**

Mac Doctor Electronics

1145 Terra Bella Ave • Mountain View, CA 94043 • (415) 964-2131

Trademarks: Macintosh, Mac Plus, Apple, of Apple Computer, Inc; Excel of Microsoft Corp.; Jazz of Lotus Development Corp.; PageMaker of Aldus Corp.; HyperDrive of General Computer, Inc.; BrainStorm, PowerSaver, Rom Enhancer of Mac Doctor Electronics

Circle 395 on reader service card

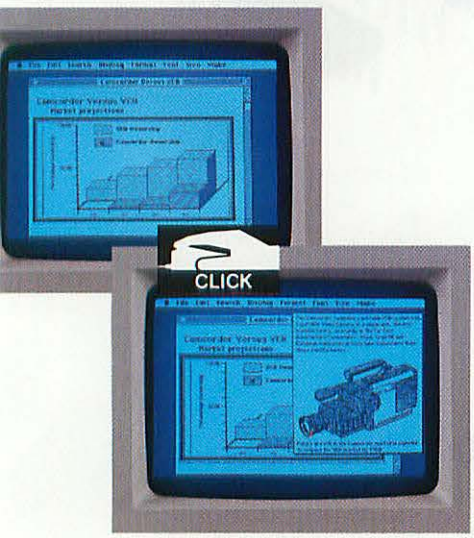
Guide takes the hype out of Hypertext

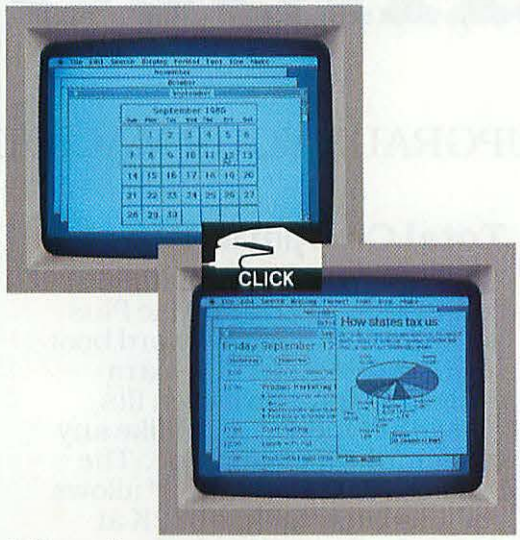
Guide is the first hypertext system designed specifically for the Macintosh. Now you can direct the power of the Mac with the most innovative principles of hypermedia for your personal information management.

Move through information at the speed of thought.

Guide provides virtually limitless flexibility in storing, retrieving and assembling electronic information. Unlike outline processors that force you to structure information according to a rigid format, Guide allows you to flow naturally through stored text.

Rather than emulating a printed page, Guide is designed to take advantage of the computer screen by allowing any number of windows containing graphics and text to be displayed. When windows are resized, graphics are automatically proportioned and text is reformatted instantly. Any displayed window can be activated and worked from.





Information management that's as flexible as you are.

A click of the mouse at any user-defined point in a body of text and a more comprehensive level is created on the screen for storage or retrieval of information, cross references and notes. If your Guide document cross references another document, Guide automatically opens a new window for it. Guide lets you tailor your information system to suit you...not some programmer.

With Guide you can...

- build a scheduling calendar with whatever level of detail you require. Cross reference meetings with relevant documents. Click on any date and see your agenda for that day along with other pertinent information.
- create a graphics Guideline with MacDraw or MacPaint. Click on different parts of your graphic and create new levels of information or open other documents containing cross-referenced information.

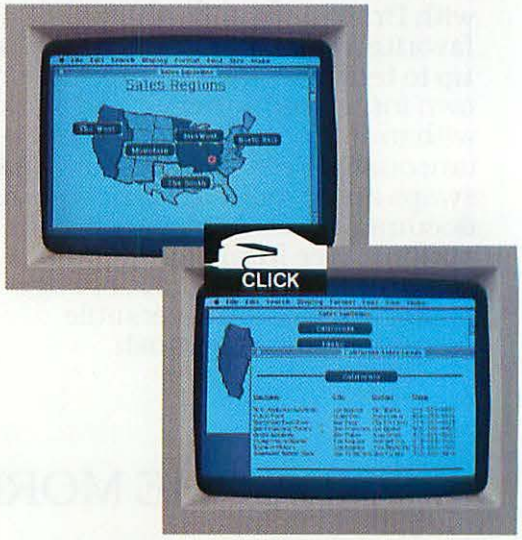
Use Guide for product specifications, research reports, personal information, legal documents, technical documents, electronic correspondence and a lot more.

Enhancement for desktop communications.

Guide brings a new dimension to desktop communications. Use Guide to create any type of electronic document for desktop publishing, electronic mail, creative writing, researching, etc. Guide supports MacWrite, MacPaint and MacDraw. You can print anything that can be configured on your screen.

Easy to learn...easy to use...easy to buy.

Guide is a program that you can learn while you use it. Four cursor patterns and six screen devices are all you need to know. It is 100% Mac honest. You can start using Guide immediately for your information management.



You can put Guide to work for only $134.95 (includes Guide examples disk, mini-Guide desk accessory and complete documentation).

OWL
International, Inc.
14218 NE 21st Street
Bellevue, WA 98007
(206) 451-2286

Yes, I want to do more with my Macintosh!

Please send me _____ copies of Guide at $134.95.

Total amount: _____

Payment by: ☐ VISA ☐ MC ☐ AMEX ☐ Enclosed Check

Card Number _____ Exp. Date _____

Name _____

Address _____ Phone _____

City _____ State _____ Zip _____

To Order: 206-747-3203

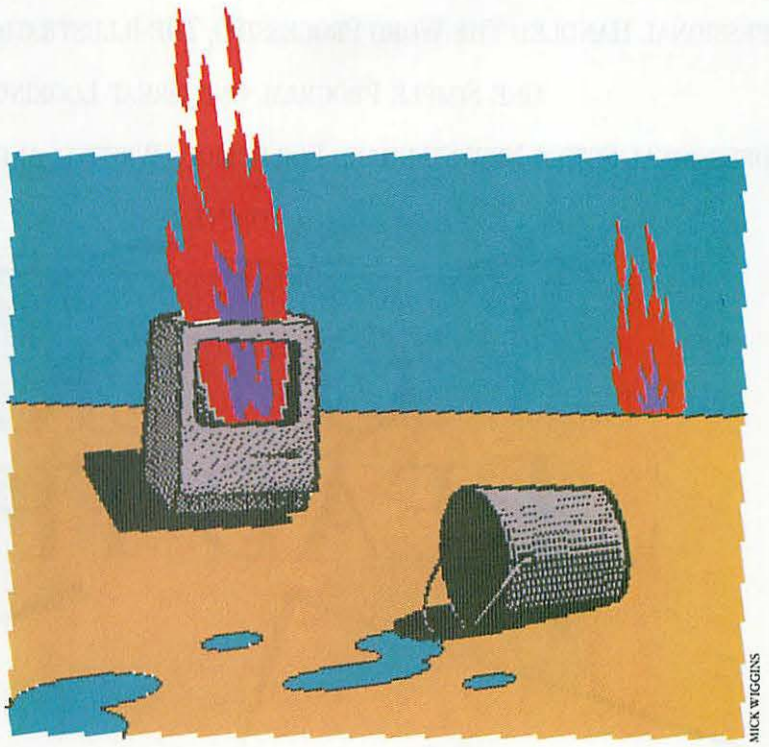
To place an order, call 206-747-3203 or enclose a check with this coupon. Please add $2.50 for shipping within the U.S. Mail to OWL International, Inc., 14218 NE 21st Street, Bellevue, WA 98007

Foreign orders add $10. Washington State residents please add appropriate sales tax.

Circle 547 on reader service card

Letters

A forum for Macworld readers



Still Burning

My Mac's power supply died last spring on the operating table while a Plus upgrade was being installed. So, with the upgrade, it received a new power supply. Within six months the new board expired—I heard a poof before the picture shrank to half its size. Prior to its demise, I noticed the left side of the cabinet felt feverish. I added a Kensington System Saver Mac, which seemed to reduce the temperature.

I encourage *Macworld* to keep a scorecard of reports about these failures. If analysis indicates the power supply has an intrinsic, designed-in suicidal tendency, Apple owes a lot of dedicated Mac owners about $153 per power supply board.

Michael B. Baker
Forest, Virginia

We'd like to hear from readers who have trouble with Mac analog boards or any other hardware. If we see patterns develop, we'll investigate and keep everyone informed.—Ed.

Burned Up about Burnout

You hit a responsive chord when you mentioned problems with the Mac power supply [*Mac Bulletin,* November and December 1986]. Mine went bad 113 days after I upgraded to 512K memory and added the new 128K ROM and a double-sided disk drive. Having this happen 23 days after the warranty for the upgrade expired was frustrating, but what made it worse was that I had specifically asked the technician to check the power supply when he installed the upgrade. I had read about problems with the power supply in early Macs like mine, and I wanted to make sure it was okay.

Isn't this the type of thing that leads to a product recall or a class-action suit? Ironically, I went to Apple for my upgrade, rather than going the less-expensive third-party route, because I believed Apple would stand behind its product.

Steve Sweitzer
Indianapolis, Indiana

Some Cool Words on Burnouts

The *Mac Bulletin* item about power supply burnouts in the November 1986 issue is half right and half wrong. You're right to say a fan inside the Mac would help prevent burnouts. But it's wrong to categorically blame the problem on the additional load of memory upgrades.

The power supply board (properly called the analog board) also contains circuitry for the video display. As president of a company that specializes in Macintosh re-

(continues)

Corrections

Laser Quill, *reviewed in the November 1986* Macworld, *has become* Laser Author, *available from F.L.I., P.O. Box 49, Ramsey, NJ 07446, 201/444-5700.*

To sign up electronically for GEnie Information Services ("The GEnie in the CRT," Reviews, Macworld, November 1986), connect by modem at 800/638-8369, and then at the U# prompt enter the following ID number and password: XJM11999,GENIE.

Apple Smalltalk-80 comes in two versions not mentioned in November's Where to Buy: *version 0.2, which runs on a 512K Mac, and version 0.3, which requires at least 1 megabyte of memory. Both versions are available for $50 from the Apple Programmer's and Developer's Association, 290 S.W. 43rd St., Renton, WA 98055, 206/251-6548 (membership $20). The association also distributes the Macintosh Programmer's Workshop, which is now available in version 1.0 with preliminary instruction manuals.*

WE KNOW WHICH ONE YOU READ.

THE PAGE ON THE RIGHT. THE PAGE CREATED WITH FULLWRITE PROFESSIONAL,™ ON A MACINTOSH.™

THE PAGE ON THE LEFT WAS DONE ON AN IBM,™ WITH WORDPERFECT.™ LET'S FACE IT, IT'S BORING.

THE PAGE ON THE RIGHT IS AS INTERESTING AS THE PERSON WHO CREATED IT.

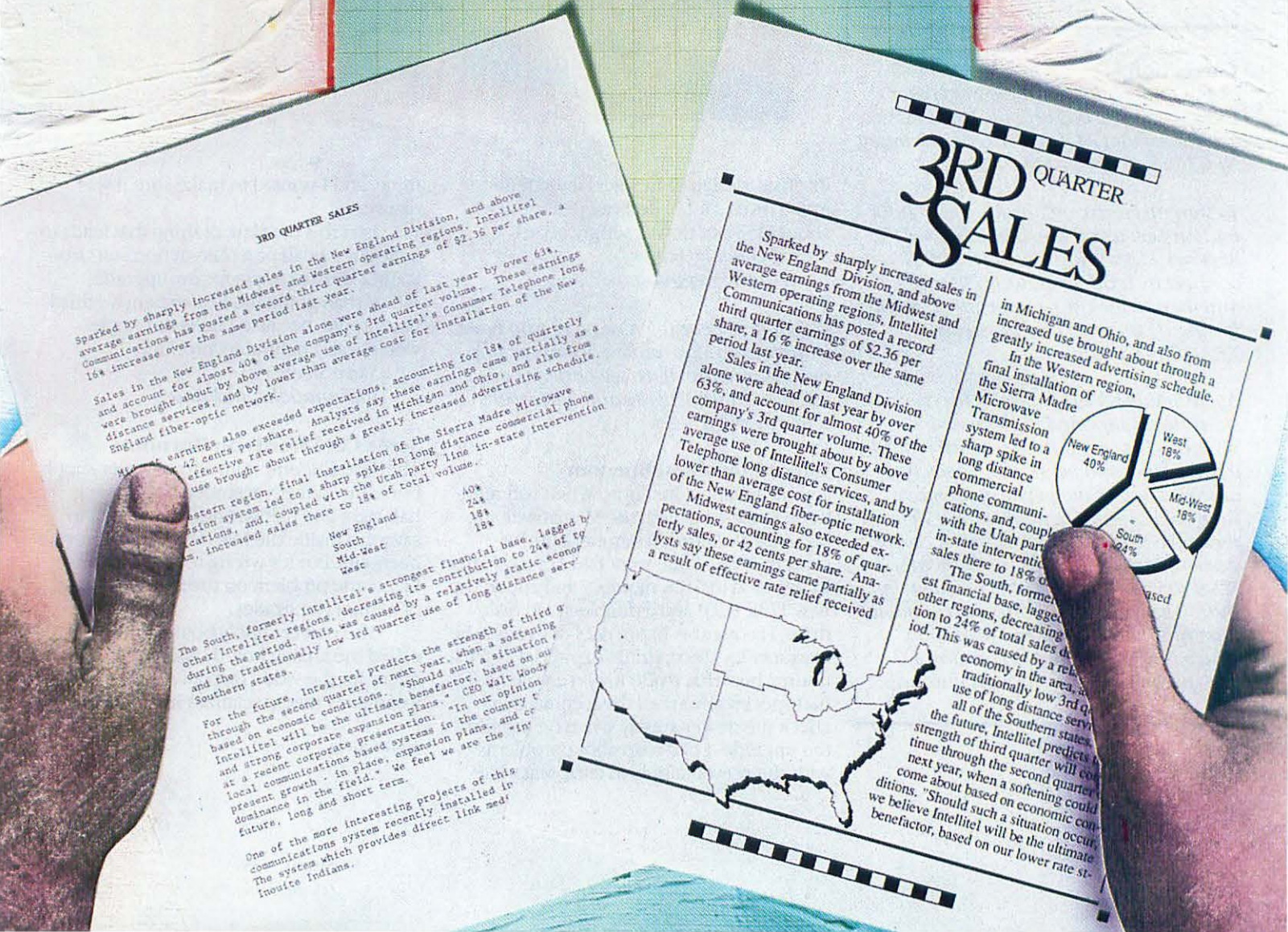
FULLWRITE PROFESSIONAL HANDLED THE WORD PROCESSING, THE ILLUSTRATION, THE GRAPH, THE TYPE, AND THE LAYOUT.

ONE SIMPLE PROGRAM. ONE GREAT-LOOKING REPORT.

FULLWRITE PROFESSIONAL SETS A NEW STANDARD FOR SERIOUS WRITING. AND IT'S GOING TO CHANGE BUSINESS WRITING.

FOREVER.

QUICK. READ THIS.



QUICK. WRITE THIS.

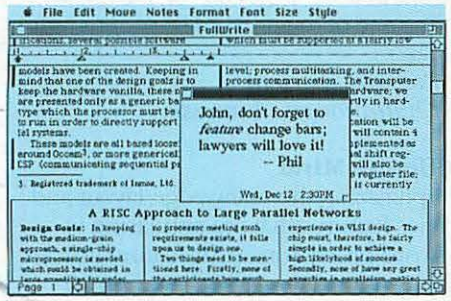
FullWrite Professional is, quite simply, the finest word processor you can buy. Period. It's also the easiest to use.

It has all the functions of a full-power word processing program. Like outlining, a glossary, spell-checking, automatic indexing, table of contents, and a thesaurus.

And it has more.

Like posted notes for comments, and automatic renumbering of footnotes and endnotes. Revisions are automatically highlighted, too.

And that's just the start.



POST NOTES RIGHT TO THE PAGE

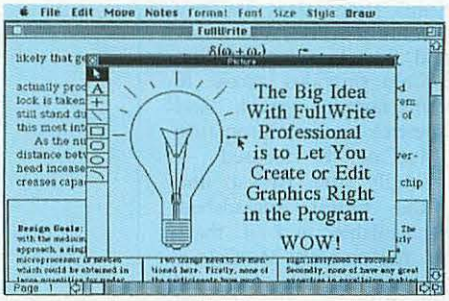
QUICK. DRAW THIS.

FullWrite Professional gives you the unprecedented ability to draw in a MacDraw™-like environment without leaving the word processor.

You don't have to switch to your drawing program. Just bring out your tools right in the middle of the text.

And if you don't want to create your art, it easily imports both bit-mapped and object-oriented graphics from other programs and art collections.

Everyone wants people to see things their way. And with FullWrite Professional you can show them your way.



GRAPHICS CREATION/EDITING

QUICK. LAY THIS OUT.

Work any way you like. Because FullWrite Professional lets you create a fully-laid out page as you go. And makes changes automatically. No other word processing program can do that.

It wraps text around irregular shapes instantly.

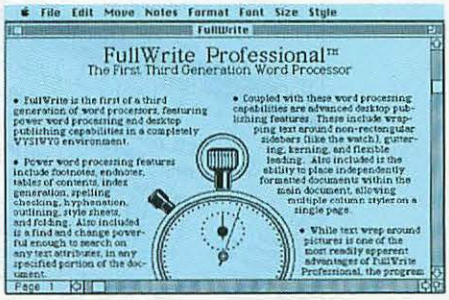
No page layout program can do that.

Create multiple columns, and even use different sized columns on the same page. Control kerning, leading, and gutting.

It's fast and simple.

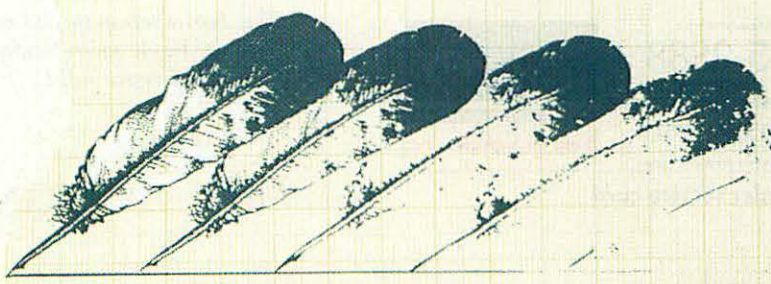
It's the look any serious document will have from now on.

Because from now on, writing will never be the same.



TEXT CAN WRAP AROUND PICTURES

256 1024 800K

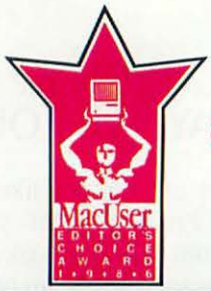


FULLWRITE PROFESSIONAL

ANN ARBOR SOFTWORKS
2393 Teller Road · Suite 106
Newbury Park, CA 91320
(805) 375-1467

The prefix Full, FullWrite, and FullWrite Professional are trademarks of Ann Arbor Softworks.
Macintosh is a trademark licensed to and MacDraw is a trademark of Apple Computer.
IBM is a registered trademark of International Business Machines.
WordPerfect is a trademark of WordPerfect Corp.

Circle 204 on reader service card



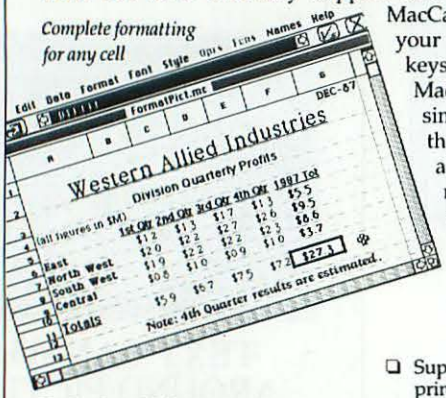
"MacCalc is the clear value leader in the Macintosh spreadsheet market."
— *Infoworld*

MacCalc

Speed, Style, Simplicity

To be fast is not enough — the speed must be easy to use. We set out to make MacCalc fastest in this fullest sense ... and succeeded. MacCalc is blindingly fast — and that speed is available to the novice as well as the power user. And not only is MacCalc easy, we also included the most important "wish list" features, like cell notes, database search/sort commands, complete formatting with variable fonts/styles/sizes for any cell, variable row height and variable column width, and more. With full desk accessory support and Switcher-compatibility, MacCalc provides access to your favorite graph and keystroke macro programs. MacCalc is focused — simply the easiest and the fastest spreadsheet available...and if that's not enough, MacCalc is also the lowest cost! Ease, speed, style and simplicity. MacCalc.

Complete formatting for any cell



- On-Line Help
- Full Undo for all operations
- Notes for any cell: create an audit trail or remember key assumptions
- Not copy-protected
- Reads/writes Lotus 1-2-3 files and SYLK data
- Supports Desktop Publishing: print publication-quality output or paste formatted tables directly into your page layout program
- Full choice of Format, Font, Style, & Size for any cell
- Variable row height & column width

"...[MacCalc] actually runs faster than Excel; and it clearly surpasses Multiplan in both speed and features... MacCalc is the clear value leader in the Macintosh spreadsheet market... it is difficult to rate [MacCalc] anything but excellent."
— *Infoworld* software review, 3 November 1986

"MacCalc's one of the best programs I've ever bought... It has an excellent manual... [Bravo] did a terrific job."
— a Financial Analyst in New York

"MacCalc is a well-designed and powerful product for those who require a full-featured spreadsheet... It is easy to learn, fast and efficient, and is a very good buy..."
— *MacWorld*, December 1986

$139
(CA add sales tax)

Call to order, 8AM to 5PM P.S.T.
800 345-2888
c/o DPAS P.O. Box T Gilroy, CA 95021-2249

BRAVO

Dealer & Corporate Inquiries: (415) 841-8552

Bravo Technologies, Inc.

Trademarks: MacCalc/Bravo;1-2-3/Lotus; SYLK,Multiplan,Excel/Microsoft;Macintosh/Apple

Circle 38 on reader service card

pair—including repairing analog boards for dealers all over the country—I can tell you that nine out of ten analog board failures are video circuitry failures. It is heat that causes these failures, not draw from the power supply.

If the upgrade load were the cause, we'd see a higher failure rate for Macs with upgrades, but that hasn't been the case. I suggest that *all* Mac owners—including 128K owners—have a fan installed. I know that Apple is adamant that a fan is not needed, but our experience shows that a fan helps, although it does not prevent all failures.

Loy Spurlock
Computer Quick
La Mirada, California

Back to Basics

I applaud the new column on the basics of the Macintosh ["Getting Started," monthly since November 1986]. Sometimes we get so caught up in looking for more intricate software that we forget all the intricacies within some of the most basic programs for the Mac.

Richard Sherwin
Chattanooga, Tennessee

A Different Mind

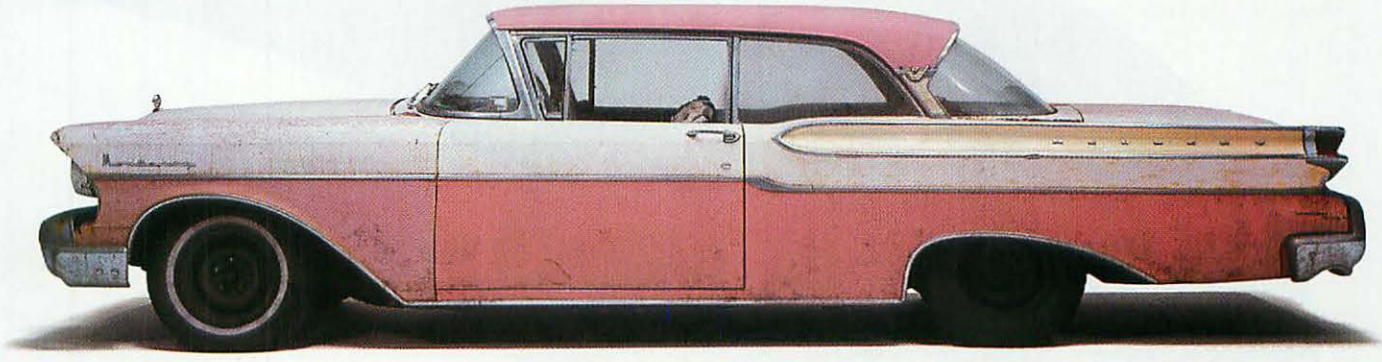
In emphasizing the many page-layout and graphics features that are appearing in new word processors, your feature article ["Writing Your Own Ticket," December 1986] overlooked the significant contribution *MindWrite* can make in the writing process. *MindWrite* offers new tools that didn't appear on your comparison chart, such as an accumulating Clipboard and a Find All command that gathers references and creates a new document. Your chart omitted *MindWrite*'s automatic table-of-contents function and listed the program as having *split* windows (similar to *Microsoft Word*'s); instead, it offers *multiple* windows on the same document, for greater flexibility. In addition, *MindWrite* simplifies the formatting of complexly structured documents such as contracts, reports, and technical specifications.

Susan Raab
MindWork Software
Carmel, California

For a separate assessment of MindWrite, *see* Reviews *in* Macworld's *forthcoming April issue.—Ed.*

(continues)

YOU WOULDN'T DRIVE A CLUNKER TO THE OFFICE.



SO WHY DRIVE O

What BMW has done for the automotive industry, Mirror Technologies has done for the hard drive industry. We don't simply crank out drives to meet current demands. We carefully engineer them to exceed yours.

Our products are extremely quick—taking you from 0 to 60 pages in a heartbeat. They handle like a dream as they wind through deskloads of information. And their reliability is unmatched. Built to go full throttle day after day. So you can overtake the pack. Instead of just running with them. So don't settle for a hard drive riddled with compromise. But rather, choose a drive built by a company that looks on compromise as a 4-letter word.

WE'VE GOT A GREAT TRACK RECORD.

Before you buy a drive from a company, you should take a look at their history. Ours is quite impressive.

We were the first to introduce an 800k drive for the Macintosh. First with the 20 meg tape backup. And first with the 85 meg, 172 meg and 340 meg hard drives.

Our products are selling to companies like Honeywell, AT&T, 3M and Apple. Yet we've also pleased some companies that you probably haven't heard of. Like Don's Dog Service, Anderson's Nursery and Himalayan Expeditions. Who knows, maybe now that they have the right tools, these companies, too, will become household words.

MAGNET 20X, 30X AND INTRODUCING THE 40X.



Here are all the choices for storage you need (20, 30 and 40Mb). The 20X, perfect for everyday use. The 30X, 50% more storage for the price of our competitor's 20 meg drives. And introducing the 40X, offers all the storage you need for power computing. All cooled by our extra-quiet fan. They sit beside your Mac, so the system won't heat up. Daisy chain up to 7 units. They come with backup utilities and optional MacServe networking software (a $250.00 value). Preformatted, so just plug them in and run.

MAGNUM TAPE 20. INTRODUCING THE MAGNUM TAPE 40.



For the serious user who can't afford to lose data. These "safety nets" keep a portable, permanent record of your data. So reliable, the Library of Congress uses us to backup their most critical data. Free software update policy so your tape drive can be updated as we update ours. We're the only one to deliver file by file, volume and incremental backup. With incremental, you backup *only* the data you've changed since your last backup. These totally secure systems run silent and cool. When we designed the new Tape 40, we worked side by side with Apple and 3M so it would be compatible with any products released by Apple in the future.

THE MAGNUM 800.



The first 800k drive introduced for the Mac. Thousands of satisfied customers worldwide. Offers great speed and value. It's quiet and comes with a one-year warranty. Push button eject mechanism. Compatible with the Mac 128, 512 and Plus. Reads and writes 400K, 800K diskettes.



E IN THE OFFICE?

THE MAGNET 40/40.



A very fast 40 Meg hard with a dependable 40 Meg tape backup as a "safety net." Sits under your Mac so it doesn't take up extra space. The premier drive/tape backup combination in the market. Backup file by file, volume or incrementally. With incremental, you can usually backup your daily data in under 4 minutes. Comes standard with MacServe ($250.00 value) to allow you Multiuser, Multitasking. This drive is based on the NEC drive and the 3M Tape 40 — two leaders in their respective industries.

WHEN YOU WORK IN THE FAST LANE, YOU CAN'T AFFORD TO BREAK DOWN.

To win in today's fast and furious corporate arena, you need a drive that can survive the grueling pace. You need a well built machine.

Well you'll be happy to know that our drives are so well built that we were the first to introduce a full-year warranty. And of course this warranty is still policy today. Plus each unit comes with a Quality Assurance Report detailing every step of production. And finally, before a drive is allowed out the front door, it is tested for 24 continuous hours to insure its durability.

Our "pit crew" is equally dependable. If you ever have a problem, we have trained experts standing by. Just give us a call, toll free. And we'll have you up and running in no time. Flat.

MAGNET 85X, 172X AND INTRODUCING THE MAGNET 340X.



Three times faster than standard hard drives because we use voice coil technology. These combine blistering speed, enormous capacity with tape backup and Multiuser, Multitasking software (includes MacServe, a $250.00 value). All 3 are combination drives with integrated tape backup. Powerful, compact, quiet alternatives to the AST 4000. The 172 offers twice the capacity for the same price. (Based on the November 1986 suggested retail pricing.)

AST 4000 is a trademark of AST Research Inc. Macintosh is a trademark of Apple Computers Inc.

WE'RE REVVING UP FOR THE FUTURE.

The Macs of tomorrow are just around the corner. And with Mirror Technologies, you can hit the ground running when they arrive.

Currently, we're shipping more drives than any other company except Apple. Like the 85X, 172X, the MagNet 40/40 and tape drives, too.

When File Servers hit the streets in January, we were there with big enough hard drives to tie dozens of Macs together. Other drives would blow an engine trying to do that.

And it's no secret that Apple is about to introduce bigger and better machines. We're ready for them, too. Because we're not waiting for the future to come to us. We're going out half way to meet it. That way, we come back with products that'll let you blow the doors off all those who remained standing still.

MIRROR TECHNOLOGIES Inc.

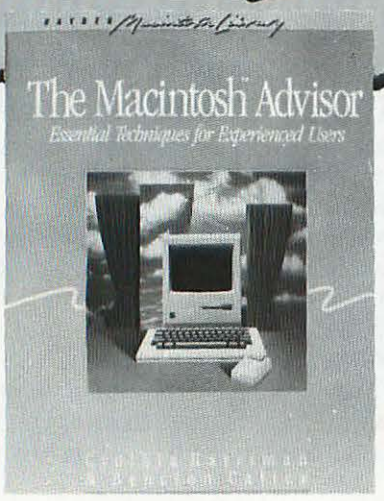
2209 Phelps Road, Hugo, Minnesota 55038 612-426-3276

Peripherals Plus, Inc.
350 des E'rables, Lachine,
Quebec, H8S 2P9
(514) 367-3060



Circle 406 on reader service card

HAYDEN BOOKS
Macintosh Library



"For the experienced user, The Macintosh Advisor is in a class by itself. It is by far the best of its kind."
Don Ross, Microcomputer Workshops Courseware

"...the most helpful text for the Macintosh user that is available anywhere. It is a book that contains information found nowhere else and...is not only easy to understand, but at the same time easy to apply."
Dr. H. K. Morrell

Another in the acclaimed Macintosh Library series, *The Macintosh Advisor* will help you learn advanced methods for making Macintosh hardware and software work to their fullest capabilities.

This book provides techniques, tips, and advice on how to shortcut some of the Macintosh's more elementary procedures and enable you to use your Macintosh or Macintosh Plus more productively.

Learn how to increase the speed of computing tasks by gaining a better understanding of the Finder, RAM disks, memory management, and other features. The book examines powerful hardware options such as hard disks, RAM upgrades and the LaserWriter.

256 Pages, No. 046569, $18.95

Other Macintosh Library Selections

■ Advanced Macintosh™ Pascal ■ How to Write Macintosh™ Software ■ Introduction to Macintosh™ Pascal ■ MacAccess: Information in Motion ■ MacBook ■ Object-Oriented Programming for the Macintosh™ ■ Macintosh™Multiplan™ ■ Macintosh™ Revealed, Volume One, Unlocking the Toolbox ■ Macintosh™ Revealed, Volume Two, Programming with the Toolbox ■ Basic Microsoft® BASIC for the Macintosh™ ■ Personal Publishing with the Macintosh™ ■ Programming the 68000

HAYDEN BOOKS
A Division of Howard W. Sams & Company
1-800-428-SAMS
4300 West 62nd Street; Dept. DM896, Indianapolis, IN 46268

Circle 644 on reader service card

GET OUT OF THE DARK.

Open your eyes and see just how many subjects are covered in the new edition of the Consumer Information Catalog. It's free just for the asking and so are nearly half of the 200 federal publications described inside. Booklets on subjects like financial and career planning; eating right, exercising, and staying healthy; housing and child care; federal benefit programs. Just about everything you would need to know. Write today.

Consumer Information Center
Department TD, Pueblo, Colorado 81009

U.S. General Services Administration

Letters

When in Rome

Reading about Apple's purchase of a supercomputer [*Macworld News,* November 1986] reminded me of an anecdote I heard last spring when John Rollwagon, chairman and CEO of Cray Research, spoke to my MBA class.

After Apple purchased its Cray, Rollwagon telephoned Seymour Cray, the genius behind the company. "Seymour," said Rollwagon, "Apple just bought a Cray." "What are they going to use it for?" inquired Cray. "Well, I think they're going to design the next Apple computer on it," Rollwagon replied.

Silence from the other end of the phone. Finally: "That's interesting. I'm designing the next Cray on an Apple."

Lynette Hough
Maple Grove, Minnesota

Who Cares?

Regarding David Bunnell's editorial in the November 1986 issue: Who cares if many microcomputer industry brains behind significant revolutionary products are homosexual? I don't lie awake at night wondering if my washer, dryer, TV, and personal computer were designed by gays, or the KKK, or communists, or rednecks, or right-wingers, or football players, or fat people, or skinny people. However, if I pick up a magazine on dryers, I want advice, reviews, and editorials on the dryer industry.

Arden Henderson
Angleton, Texas

Fractured Fairy Tales

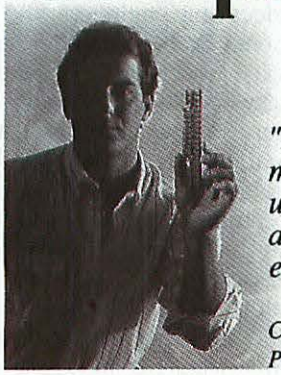
Boy! Did David Bunnell stick his neck out this time ["Coming Out of the PC Closet," November 1986]! It sounds as if he's starting to believe the fairy tales about personal computer guys being idealistic "renegades" who are "committed to individualism."

That's right—you can't buy us PC guys. Money means nothing to us. If it did, instead of giving our programs away, hell, we'd be selling our code for $600 a shot and copy protecting it just to give everybody a hard time. Yeah, and instead of using computers to fascinate the intellect and solve human problems, we'd be using them at work—probably doing payroll and accounting stuff—and getting paid to do it as though it were a job.

If Georgia governor Joe Harris knew all this tough stuff about us, he'd probably think twice about inviting a wild bunch like us into his state. He probably thinks he'll

(continues)

Compare.



"Not all memory upgrades are created equal."

Carlos Suarez
President

To help clear up the confusion about Macintosh Plus™ memory expansion products (and to point out some of the reasons why our MaxPlus 2Mb upgrade immediately became the world's best-selling Macintosh memory board), we offer this list of five key questions to ask when comparing products.

1. Will it let me expand to 4Mb?
YES ***MacMemory, MaxPlus***
NO *Dove*

2. Does it use the same surface-mount technology Apple® uses?
YES ***MacMemory, MaxPlus***
NO *Levco, Dove*

3. Do I get extras like RAM disk and print spooler software?
YES ***MacMemory, MaxPlus***
NO *Levco, SuperMac*

4. Will I have toll-free technical support and the longest board warranty available? *(Two years)*
YES ***MacMemory, MaxPlus***
NO *Levco, Dove, SuperMac*

5. Am I getting the most for my money?
YES ***MacMemory, MaxPlus ($399)***
NO *Levco ($395)*
Dove ($399)
SuperMac ($499)

For a more extensive comparison chart, and the dealer nearest you, just call us at 800-862-2636, or 408-922-0140 inside California.

**Data compiled as of December 1, 1986. Competitive products compared: Levco: OnePlusOne. Dove: MacSnap2, SuperMac: SuperRAM. MacMemory: MaxPlus.*

Apple and Mac are trademarks of and Macintosh is a trademark licensed to Apple Computer, Inc.

Beyond Compare.

Shift into high gear with TurboMax™, the high-performance accelerator board we loaded with all the features a power user needs. (Coming in February)

We started with *speed*. We added a new, more powerful 16 MHz CPU to nearly triple the speed of the Mac™. *Really* serious number crunchers can plug in the optional 68881 math co-processor to achieve speeds *hundreds* of times faster than a standard Mac.

We added *memory*. 1.5 Mb of *extra* memory that runs large programs easily, and can expand to a full 4 Mb to do even more.

We added our super-speed *SCSI port*. It nearly doubles the speed of the SCSI on your Macintosh Plus, and *adds* the high-speed SCSI to your Mac 512K. Hard disks run faster. (And internal hard disks will just plug in.)

We made sure your Mac would remain *100% compatible* with your software.

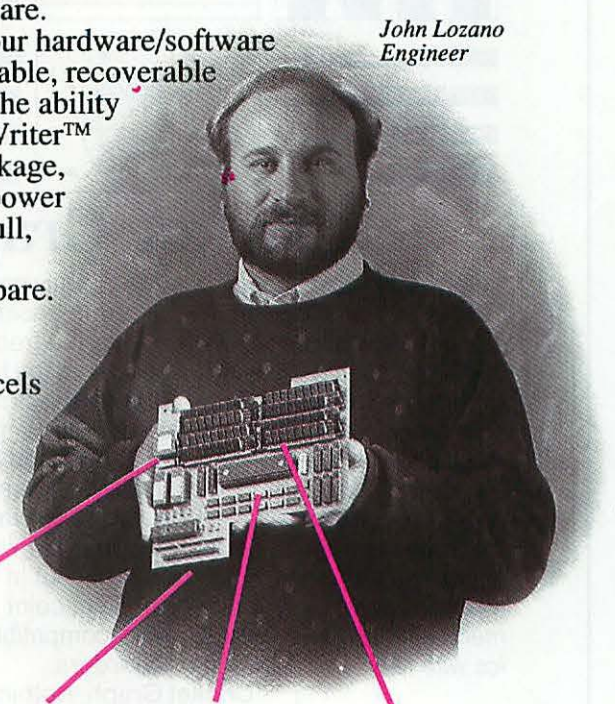
We built in *MaxSave™*, our hardware/software system that gives you a reliable, recoverable RAM disk in memory and the ability to work while your ImageWriter™ prints. To complete the package, we included an additional power supply, internal fan and a full, two-year warranty.

And price? Beyond compare. For the price of its closest competition you can buy the TurboMax and *two* Excels (the spreadsheet from Microsoft *and* the car from Hyundai).

Who could ask for anything more?

"A Macintosh™ accelerator board is on every power user's wish list. But price kept most of us wishing. We worked hard at MacMemory to produce the power board you need at the price you can afford."

John Lozano
Engineer



Math Co-Processor
Optional 16MHz 68881 floating-point chip addressed as peripheral to 68000. Works with all programs using SANE or offering 68881 support.

SCSI Port
Added super-speed SCSI port, up to two times faster than the Macintosh Plus. Adds 50-pin port to 512K Macintosh or speeds up existing MacPlus port. Ready for optional internal hard disk.

CPU
16MHz 68000 processor. 200% faster than the Macintosh or Macintosh Plus. Addresses all daughterboard RAM with no video wait states for overall speed improvement of 250%.

RAM
Additional 1.5 Mb of 120ns RAM, structured as 256Kx8 SIMM modules. Expandable to 4Mb with addition of two 1024Kx8 megabit modules.

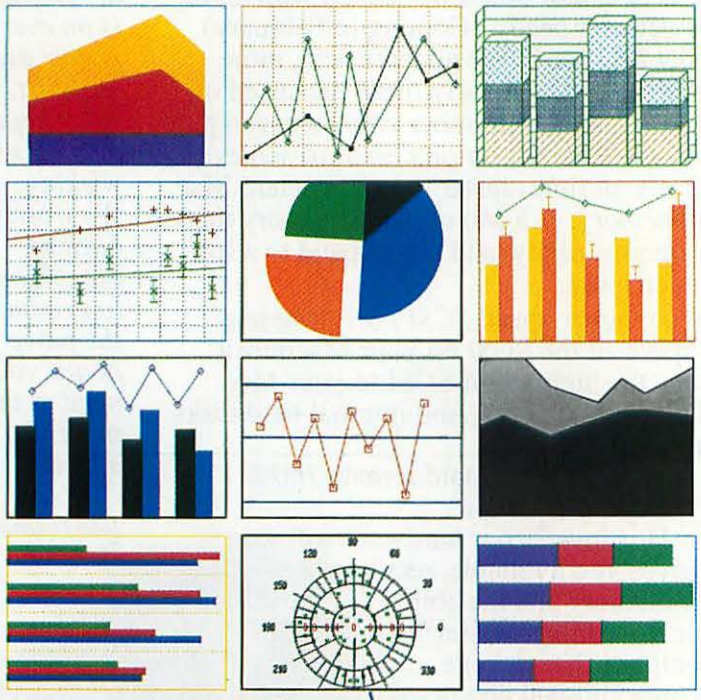
MacMemory

The Macintosh Performance Family

2480 North First, San Jose, California 95131 / 800-862-2636 in California 408-922-0140

Circle 337 on reader service card

If your Mac can't graph like this, it's not quite Cricket.



Cricket Graph

• Get the **12** most popular business/scientific charts and graphs in **one package** • Plot **2000** data points per series. (95% more than any other Mac graphic package) • Full color and **3-D** capability • Position up to **10 graphs** on a single page • Page layout for **desktop publishing** merges graphics with text

Only one software package arms business and science with the tremendous graphic power of the Macintosh™. Cricket Graph. The first Mac package to deliver all the impact of color presentation charts and graphs. And all the possibilities of desktop publishing.

Transform data into graphics that speak louder than words. Then, print your creations out in crisp black and white or brilliant color on any of the most popular Mac-compatible printers, plotters and film recorders.

Cricket Graph. Nothing else even comes close. Just $195. Special versions available for film recorders and other high end output devices.

Requires 512K Macintosh with two disk drives, or Mac Plus with one internal drive.

Macintosh is a trademark of Apple Computer Inc.

Charts printed on LaserWriter™, Hewlett Packard Color Pro™, and ImageWriter II.™

cricket software

3508 Market Street, Suite 206
Philadelphia, PA 19104
(215) 387-7955
1-800-345-8112

Circle 384 on reader service card

Letters

get a bunch of straight, white, fundamentalist Christian electronic engineers who work to make money. Well, he'd better realize that if Georgia ever sets up a computer system to track gay people (or any other group of un-American deviates) so that at a moment's notice they can be effectively identified, isolated, punished, and corralled into concentration camps, he sure can't count on any help from us high-minded PC guys, right?

I gotta admit it though, those squirming little minorities really have it rough. At least Japanese-Americans like me know that nothing like that could happen to us.

H. Doug Matsuoka
Honolulu, Hawaii

The South May Rise Again

I applaud David Bunnell's statement in the November issue. Anti-sodomy laws and laws against evolution make a lie of the promise of the new rising in the old South.

Stuart N. Atwood
Olympia, Washington

The Irony of Deregulation

It was a ray of sunshine to read David Bunnell's November editorial on Georgia's sodomy laws; I fully agree with him. What an irony that under the guise of deregulation and freedom we unleash handguns, encourage reckless trucking, stifle the EPA, cripple OSHA, and at the same time try to regulate our bedrooms (and urine).

Dick Demenus
New York, New York

A Graphic Representation

Thanks for the masterful consumer-level technical information in "The Graphic Mac" in the November issue of *Macworld*. It represents an exciting polarization toward the high quality of information, technical clarity, and logical presentation that, in the past, have successfully differentiated *Macworld* from the rest.

Stephen J. Staws
Northridge, California

Screening the Numbers

Several times "The Graphic Mac" refers to the Mac's screen resolution as 340 by 512; in the accompanying diagrams, 340 appears as the horizontal resolution. Actually the resolution is 512 horizontally by 342 vertically. It was also quite a revelation that all the 8088 microprocessors in all the IBM PCs have magically turned into 8086 processors.

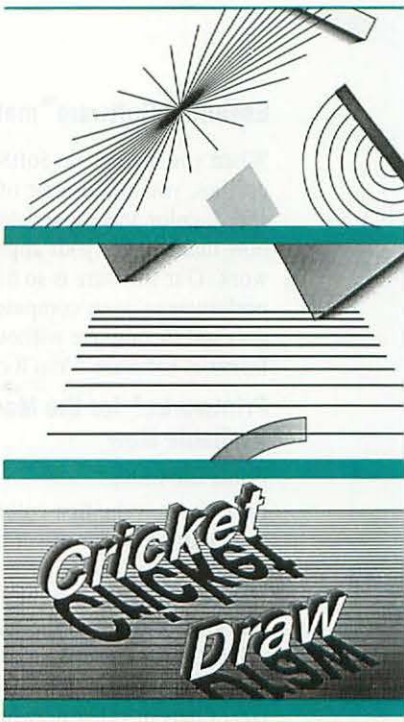
(continues)

DRAW PERFECTED

INTRODUCING

CRICKET DRAW

Draw has been around as long as the Macintosh. It took Cricket Software to perfect it. Finally, the Mac's graphics capabilities can truly be realized with Cricket Draw, the revolutionary new draw program from Cricket Software.



UNPRECEDENTED FEATURES

The kind of features you only dreamed possible, such as full rotation and tilting of any object, controlled shadowing, shading with a gray scale (0-100%), fountains (graded tints), starbursts, grates, bezier curves and much, much more. And with an Imagewriter II printer you can see it all in dazzling color.

UNMATCHED TEXT MANIPULATION

Special effects with text are Cricket Draw's forte. Place text on any arbitrary path; rotate, tilt, shadow, shade — YOU NAME IT!

PRECISE CONTROL

Precision drawings? How about vertical and horizontal rulers with your choice of inches, centimeters, picas or pixels? Also, you can show the measurements of any object, precisely align objects using grids or guidelines, zoom-in, zoom-out — Cricket Draw has it ALL.

A POSTSCRIPT CODE GENERATOR

High quality graphics output on a laser printer requires knowledge of PostScript. Cricket Draw is actually a PostScript code generator. It does all the work. You never have to come in contact with PostScript, UNLESS you want to. Then you can access a PostScript window to edit or create your own code from scratch.

ADVANCE TO CRICKET DRAW

Your current draw program is simply obsolete, why not advance to Cricket Draw, just $295, available at local dealers everywhere.

cricket software

Anything Less Isn't Quite Cricket

Requires a 512K Enhanced Macintosh or a Macintosh Plus.

3508 Market Street, Suite 206
Philadelphia, PA 19104
(215) 387-7955 1-800-345-8112

Macintosh is a trademark of Apple Computer Inc.
Imagewriter II is a trademark of Apple Computer Inc.
PostScript is a trademark of ADOBE Systems, Inc.

Circle 384 on reader service card

Match



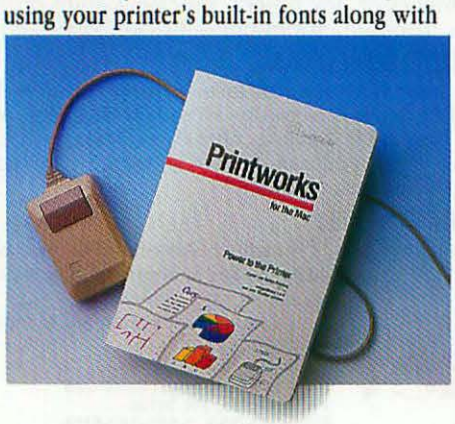
Essential Software™ makes you a match

When you marry into SoftStyle's family of utilities, you inherit ease of use, power, speed, color and expandability. Discover how much better your applications can work. Our software is so basic and critical to performance, your computer will feel sluggish and incomplete without it. We call it Essential Software™. You'll call it indispensible.

Printworks® for the Mac Available Now

Prints Charming.

Printworks is the first color, high performance ImageWriter driver to walk down the aisle with the Mac. High speed spooling lets you work and print at the same time. Print previews of pages to the screen, then skip or print. On the ImageWriter II, print color directly from MacDraw, MacDraft, Excel, Jazz, Chart or other drawing and charting applications—each graphic will be colored automatically. Letters and memos look great using your printer's built-in fonts along with our enhanced word spacing. Even merge printer text with graphics on the same page. Installs with a click for good on application or hard disks. You'll print happily ever after, and as easily as with Apple's standard ImageWriter driver. Only better. **$75.**



Compatibility: Macintosh 512K, 512K Enhanced, or Plus with Finder 5.3 or equivalent.

Plotstart™

A brilliant affair.

Plotstart links your Mac with HP desktop plotters for professional color graphics. Dazzle them with brilliance on paper or transparencies. There's no cut and paste needed. Just select "Print" and you'll plot in vibrant color. Plot directly from MacDraw, MacDraft, Jazz, Excel, Chart and other standard object-oriented applications—each graphic is colored automatically. Plotstart is so simple and fast, you can easily experiment or tailor your pen colors and fills. Switch between your printer and plotter with a click using Chooser. Make your next presentation an affair to remember. **$125** with cable.

Compatibility: Any Macintosh; Finder 4.1 or 5.3; HP ColorPro with GEC, 7475A or 7550A plotters.

New. Bluestart™ & Daisystart™

IBM and Daisywheels marry into the 'Start family.

Opposites attract. The 'Start family makes your Apple Mac compatible with IBM printers and Daisywheel printers. Bluestart marries the IBM Proprinter, Color Jetprinter, Quietwriter 2, and Wheelprinter E. Daisystart marries Brother, Diablo, NEC and other daisywheel printers.
Bluestart **$45.** Daisystart **$95** with cable.



Marry your non-Apple printers to the Mac with the 'Start family of drivers.

Meet the other members of the 'Start family: Epstart™ for Epson printers, **$45;** Jetstart™ for HP ThinkJet and QuietJet printers, **$45;** Laserstart™ for all HP LaserJet printers, **$95** with cable; TI-start™ for Texas Instrument printers, **$75** with cable; and Toshstart™ for Toshiba printers, **$45.**

Compatibility: Any Macintosh; Finder 4.1 or 5.3; Choose Printer or Chooser; printers require serial interface; works with virtually any software following Macintosh printing standards.

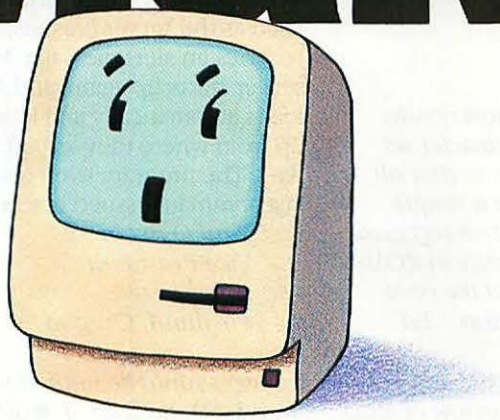
Improved. MacEnhancer™

Connect more things to your Mac.

We are gathered here to join together this one port with any four of these: modem, laser, dot matrix, scanner, daisywheel, color plotter, IBM PC and other computers, AppleTalk and more—all at the same time. It's now Mac Plus compatible with new, improved control software. MacEnhancer is attractive, compact and completely mouse

SoftStyle and Printworks are registered trademarks, Essential Software, Colormate Art, Bluestart, Daisystart, Epstart, Jetstart, Laserstart, Plotstart and Toshstart are trademarks of SoftStyle, Inc. TI-start is a trademark of Texas Instruments. Colormate is a trademark of NEC Corporation Licensed to SoftStyle. MacEnhancer is a trademark of Microsoft Corporation licensed to SoftStyle. Apple is a registered trademark and MacDraw, MacPaint, MacWrite, ImageWriter, LaserWriter are trademarks of Apple Computer, Inc. Macintosh is a trademark licensed to Apple. Hewlett-Packard, HP, LaserJet, QuietJet, ThinkJet, ColorPro are trademarks of Hewlett-Packard Company.

Maker



controlled. Plug it in and use your applications as you normally do. Apple's Installer puts SoftStyle's proven driver control software on your disks for good. Apple's Chooser lets you switch instantly between devices. Full featured communications software is included along with drivers for over 25 non-Apple printers and plotters. MacEnhancer—a port for any brainstorm. **$245.**

Compatibility: Macintosh 512K, 512K Enhanced or Plus; Finder 5.3 and Chooser; Apple modem and Hayes Smartmodem or compatible; ImageWriter and LaserWriter; selected daisywheel and dot matrix printers from Brother, Diablo, Epson, Hewlett-Packard, IBM, NEC, Star Micronics, Texas Instruments, and Toshiba; HP desktop plotters; HP LaserJet laser printers.

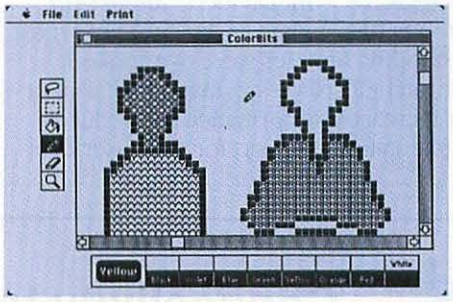


MacEnhancer expands one port into four with one standard Mac RS-422 serial port, two RS-232C serial ports, and a serial-to-parallel Centronics port.

Colormate and Colormate Art

Something borrowed, something blue.

You don't have to learn the art of 4-color separation to print in color from a black and white Mac. Colormate makes it quick and easy to create a green eyed monster or true blue hero on your ImageWriter II. The first



"Colormate lets you color-edit your MacPaint documents on a pixel-by-pixel basis. With such control over detail, stunning effects can be achieved."
C.J. Weigand, MACazine, Nov. '86.

coloring utility for the Mac is still the most versatile. Do all your coloring in one file. Open MacPaint and FullPaint files directly, even cut and paste from others. Easy coloring, easy color editing. Colormate Art adds sparkle with two disks full of more than 100 professional colored images. Colormate **$75.** Colormate Art **$45.**

Compatibility: Any Macintosh; ImageWriter II and color ribbon.

Laserstart™ Plus

Marry into the laser jet set.

Step ahead with first class work from an HP LaserJet, and other laser printers. Print as usual with unusually stunning results. Even combine letter quality text from font cartridges with laser quality graphics on the same page. Preview pages to the screen, then skip or print. The built-in spooler lets you get to work on your next assignment while your last job is printing. **$145** with cable.



Compatibility: Macintosh 512K, 512K Enhanced, or Plus; Finder 5.3 and Chooser; does not support advanced PostScript features. Supports HP LaserJet family, Cannon LBP-8A, Xerox 4045, and NCR 6416 laser printers.

Get hitched quick

Call 1-800-367-5600 to order. 30-day Money-Back Guarantee on direct orders.

If within 30 days, you find that the product does not perform in accordance with our claims, call us and we will gladly arrange a refund.

SoftStyle, Inc., 7192 Kalanianaole Hwy., Suite 205, Honolulu, Hawaii 96825.
Phone: (808) 396-6368.

Buy SoftStyle products at quality dealers who carry Essential Software.

SoftStyle®

Microsoft and Excel are registered trademarks, Microsoft Word, Microsoft Chart are trademarks to Microsoft Corporation. IBM is a registered trademark, Proprinter, Quietwriter, Color Jetprinter and Wheelwriter are trademarks of International Business Machines Corp. MacDraft is a trademark of Innovative Data Designs, Inc. Jazz is a trademark of Lotus Corporation. FullPaint is a trademark of Ann Arbor Software. Brother, Canon, Diablo, Epson, NCR, NEC, Star Micronics, Texas Instruments, Toshiba and Xerox are registered trademarks of their respective companies. © 1987 SoftStyle, Inc.

Overall you have a good magazine, but watch those numbers!

Michael J. Gibbs
Surprise, Arizona

No Money Back

My company responded to a Data Graphics ad for *Sr. Accountant* that promised a 30-day, money-back guarantee. We were not satisfied with the program and mailed it back to the firm two days later. We've waited and called repeatedly, and finally two months later an executive called us back but wouldn't agree to send a refund. I feel an advertiser is bound by his word.

Ken Mahood
Leesburg, Virginia

Jack Cauldwell of Data Graphics told us he was worried about people duplicating the un-copy-protected program and then sending it back for a refund. He said, "We only give money back to people who tell us specifically why they don't like the program, within the 30 days." That is not the same guarantee that was advertised. You could try offering a note from your mother.—Ed.

Worlds Apart

Though I think *Jazz* is great, it doesn't sort its worksheets or databases alphabetically by the Norwegian alphabet, which includes characters such as *Æ, Ø,* and *Å*. This problem isn't limited to *Jazz*—even the Finder doesn't place files in the correct order (it goes . . . X, Y, Z, Æ, Ø, Å). I hope future releases of software for Europe have proper language extensions.

Christian Falck
Trondheim, Norway

The monoglot alphabetization results from the standard ASCII character set contained in Toolbox routines that all applications call on. It's not a simple matter of upgrading the system software, because the routines are partly in ROM. An Apple representative said the company is looking into a solution.—Ed.

Networking

Though we appreciate your review of *MacServe* ["A Network Divided," *Macworld,* October 1986], some of our product's most outstanding features were overlooked, such as the hard disk management aspect that increases performance and reduces fragmentation, support for multiuser databases, and per-server pricing with no charge for user nodes.

More important, *MacServe* offers the practical convenience of global access. All users have access to whatever resources they need even if the person who manages the hard disk has not manually "published" them.

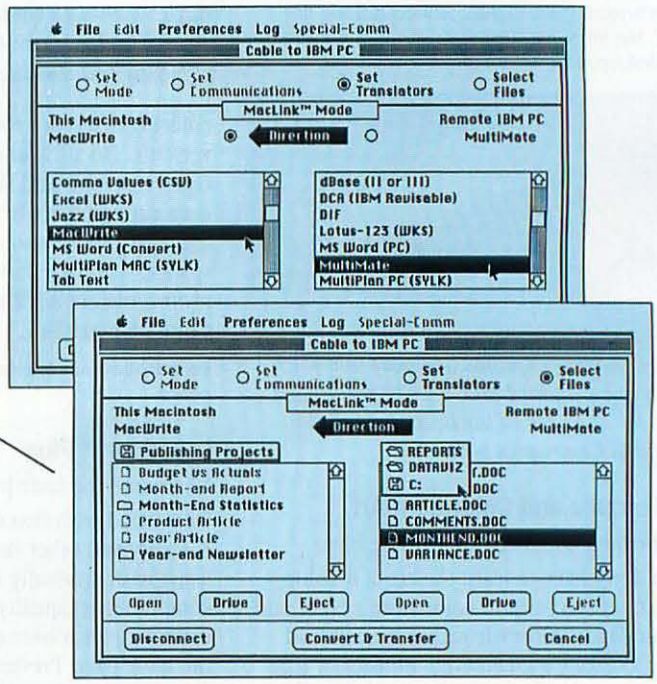
Also, *MacServe* has phenomenal crash-recovery capability. If the Mac being used as the server crashes, the user node receives an alert message. Meanwhile, the server starts up again, and *MacServe* reloads automatically and lets the users pick up from where they left off with no loss of data. The program even responds to the last command issued before the crash.

Paul O'Brien
Vice President
Infosphere
Portland, Oregon

Letters should be mailed to Letters, Macworld, *501 Second St. #600, San Francisco, CA 94107, or sent electronically to CompuServe 70370,702 or The Source BCW440. Include a return address. We reserve the right to edit letters. All published letters become the property of* Macworld. □

MacLink*Plus*™ ... Connectivity to the IBM PC *plus* ...

- Its a complete "kit" for exchanging files between the Macintosh and the IBM PC (and compatibles)
- Connects to the PC's serial port using modems or the included cable . . . or over AppleTalk when used with a Server or Network Product
- Contains an extensive library of translators to convert word processing formats, spreadsheets and data base information
- Full visibility into remote disks and directories
- TTY terminal emulator for general communications
- $195 includes Macintosh software, PC software, built-in translators, manual and cable
- Wang and NBI options available



DataViz Inc.
16 Winfield St. • Norwalk, CT 06855 • 203-866-4944

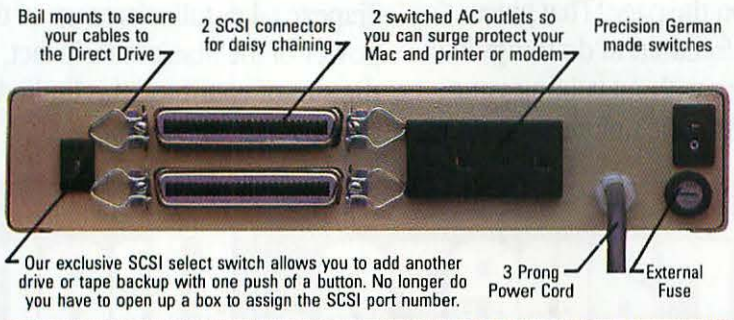
Circle 281 on reader service card

Nobody does it better . . .



This sleek attractive 2" high box is only 10" by 10" and does not stick out behind the Mac

Triple layered air filtration





To add three or more SCSI devices some small plugs called terminating resistors must be removed from the middle units. Jasmine designed this small panel so you never need to play technician and open our box.

Our ultra quiet fan pulls air through the drive and sends it out the bottom

The Mac was designed for the rest of us. Nothing complicated. No archaic language. Elegant simplicity.

Then something happened. Users are asked to solder, open boxes and become technicians. In the SCSI drive market, Jasmine finally put an end to that.

There's a Jasmine right for you.

20 MB $589* 80 MB $1380*

The Direct Drive 20

Our first product has met with resounding success and we're proud to put our name on it. The Direct Drive will satisfy your hunger for power and we know it fits your pocket book. And you can still get it for less than $600 delivered!

The Direct Drive 80

A true performance breakthrough! This sleek drive designed by Quantum blazes away with an amazing 30 millisecond access time. It features error correction and media defect handling to ensure long life and perfect performance. This drive is so intelligent it constantly scans and locates any defective sectors and locks them out. . . automatically. It fits into the same slim 2" high box as the Direct Drive 20. It just may be the best drive offered for the Macintosh yet! This drive would cost $3000 from anyone else, but Jasmine offers it for only $1380 complete. If you're a power user, call direct and we'll get you running fast.

Technical Support

The Jasmine technical support line answers all your questions about using your drive—no matter how simple or technical.

Service a Consideration?

The Direct Drive series is so easy to service that we can promise a maximum 48 hour turnaround on any drive that needs repair. We will recover any data if possible in the event you have forgotten to back-up your files.

Explore the exciting world of Jasmine and find out why we are the fastest growing manufacturer of SCSI drives for the Mac. Easy to use. Easy to order. Dial direct.

In a world full of experts and overpriced product lines, Mac enthusiasts dream of a company that will give them quality engineering at a price the rest of us can afford. Here's how Jasmine fulfills that dream:

Only Jasmine

- adds shock absorbers to protect your drive.
- ships your drive with a full P.D. and shareware library.
- tests each drive in real time before shipping.
- includes full 3-way electronic surge protection.
- adds two switched AC outlets at no extra charge.
- features the SCSI device select switch.
- never ***requires*** you to open the box to daisy chain multiple drives.
- includes a 1-year replacement warranty & 30-day money back guarantee.
- offers air delivery service in the Continental U.S.
- offers you the choice of 2-ft. or 6-ft. cables.

Jasmine
COMPUTER SYSTEMS
Quality you can afford
555 De Haro Street
San Francisco, CA 94107
415/621-4339

* Prices effective January 1, 1987 and include our 4% prepaid cash discount. M/C and Visa add 3%. COD orders add 5%.
Direct Drive is a registered trademark of Jasmine Computer Systems. Mac is a licensed trademark of Apple Computers, Inc.

Circle 570 on reader service card

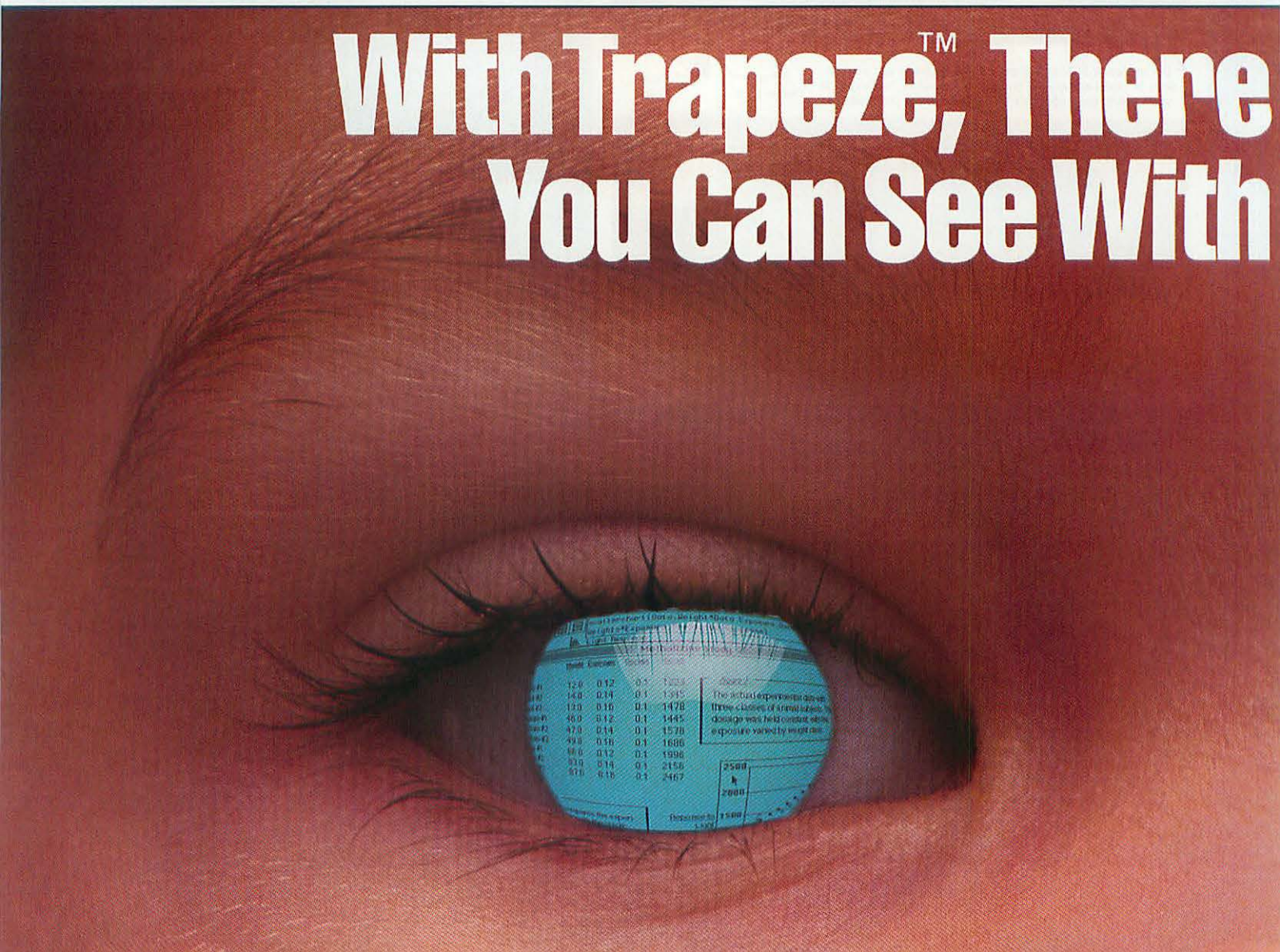
Trapeze™ is a revolutionary new spreadsheet created especially for the Macintosh.™ It was designed by a spreadsheet user who was tired of the limitations of row and column spreadsheets. He wanted a program that was as easy to use as his Mac. One that would let him do things like organize his spreadsheet model as he went along, and change his model without ruining it. He wanted to be able to define what the spreadsheet would do, rather than have the program define what he could do. He wanted to use logical names, and formulas he could understand. He wanted to see graphics, charts and text on the same page as his spreadsheet data, and to make the output look professional enough to use in presentations. And he wanted to do it all *fast*.

The result is a spreadsheet that is as innovative as the Macintosh. Trapeze is so unique, in fact, that it is being called the next generation spreadsheet. Here's why:

Flexibility–Trapeze doesn't lock you into a grid of rows and columns. Instead, it stores information in blocks. You define the block according to *what* it is, not where it is, and can move it anywhere on the page. That gives you the freedom to do things like add a row without ruining your model. And the unique auto-sizing feature causes blocks to automatically adjust in size when you make additions or changes to your worksheet.

Power–The block format of Trapeze lets you set up worksheets quickly. Even complex models can be created easily, because Trapeze contains over 100 functions and formulas, many of which are unavailable in other spreadsheets. You can create charts which plot thousands of points, and multiple databases allow you to efficiently organize your data for presentation. Trapeze takes full advantage of the power of the Macintosh; in fact, the size of your model is limited only by available memory.

With Trapeze™, There You Can See With



Style–Trapeze lets you use all of the Macintosh fonts, styles, and sizes–even color–in any block. You can create graphs on the same page with your spreadsheet or import graphics from MacPaint,™ forms from MacDraw™ or text from a word processing program. Blocks may contain text, charts, graphics, numbers–virtually anything you need to make your worksheet look good. Since the blocks can be moved around freely, you can lay out your page however you wish. And you can do most of it *without ever touching the keyboard.*

Versatility–Its unique function set makes Trapeze as useful for nonfinancial users as it is for financial ones. The program can perform matrix operations, simultaneous equation solutions and more statistical functions than any other spreadsheet. Up to 32 documents may be open at the same time, so you can work with figures for different divisions of your company–or perform several analyses of engineering data–and consolidate the information into one report. And the elimination of copying formulas and checking all related information lets you analyze complex technical data with unprecedented speed and accuracy.

Trapeze is available now for $295, and comes with a 30-day, money-back guarantee. To order, contact the dealer nearest you or call toll free **1-800-443-1022** today. Once you begin using Trapeze, there's no limit to what you can see.

Minimum system requirements–Macintosh 512K with external drive or enhanced Macintosh 512K. Supports Laserwriter ™ and Imagewriter™ I and II.

Macintosh is a trademark of McIntosh Laboratory Inc., licensed to Apple Computer, Inc., and is used with express permission of its owner. MacPaint, MacDraw, Laserwriter and Imagewriter are trademarks of Apple Computer, Inc. Trapeze is a trademark of Data Tailor, Inc.

Trapeze™

The spreadsheet without limits.

Data Tailor, Inc.–1300 S. University Drive–Suite 409
Fort Worth, Texas 76107 © Data Tailor, Inc. 1986-1987

Are No Limits To What A Spreadsheet.



Memorandum™.
You might want to make a note to yourself.

You know those sticky yellow notes you're always making to yourself. Well, now you can do the same thing electronically. With Memorandum™ from Target Software.™

Memorandum lets you attach electronic sticky notes to documents and files.

You can use it for spreadsheets, reminding yourself of the details of a specific expenditure. Memorandum attaches itself to a spreadsheet cell, so it stays in place through repeated calculations.

It's also a great aid in word processing documents and database files. Because you don't have to stop work to check a source or verify data. Just make a note and attach it.

Notes are stored in a separate file. A single command can show all notes at once. Or a note on a specific cell.

Make a note to yourself to check out this invaluable Desk Accessory soon. It's just $99.95. And it's compatible with Excel,™ Multiplan,™ Jazz,™ Works,™ and loads of others.

See your local dealer or call us at 1-800-622-5483. In Florida (305) 252-0892. Or, write Target Software. 14206 S.W. 136th Street, Miami, FL 33186.



The note-worthy new program from Target Software.

Excel™ Multiplan,™ and Works™ are registered trademarks of Microsoft® Corporation. Jazz™ is a registered trademark of Lotus Development Corporation.

Circle 478 on reader service card



The Spring of Our Disk-Content

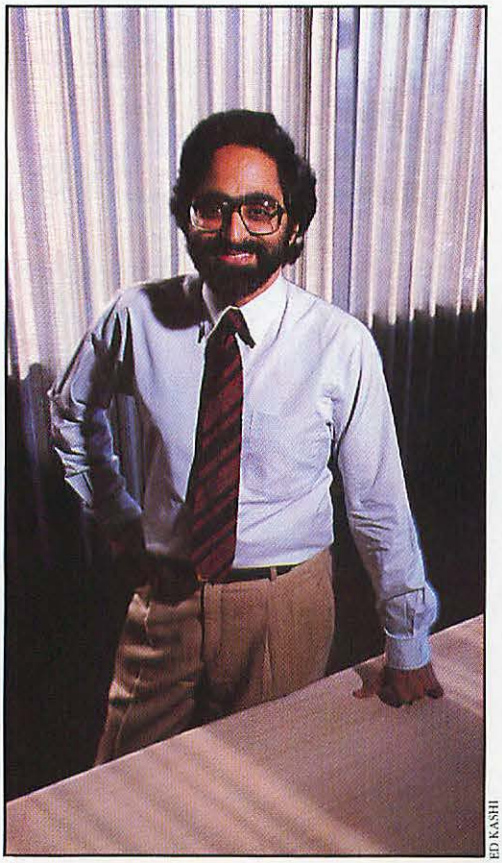
The last several months have brought a wealth of Macintosh product announcements, and many of us expect the next two months to bring even more. But in the midst of my growing expectations, the hoary ghost of unfulfilled promises rises to haunt my vision of new technology. Each month I see more products announced long before the manufacturer is able to produce or ship them.

Until the 1960s this was common practice. Then the federal government sued IBM, and was successful in forcing the company to stop preannouncing its products. The reasoning behind this landmark decision was that by preannouncing products IBM was effectively chilling competitive forces in the market. For a long while this provided guidance in an industry that regulators little understood and legislators tended to ignore.

Over the last several years—certainly during the Reagan administration's era of deregulation—the precedent set by this action has fallen into disuse. The change became apparent to me in 1981 when Sony announced the Mavica, a filmless camera that was going to enable us to capture images on magnetic disks, view them on our own TVs, and print them on low-cost thermal printers. Several years later, there are still no Mavicas in my local camera store, though Sony periodically hauls one out for a demonstration.

More recently, I recall the banner headlines of PC magazines heralding the arrival of networking products for the IBM PC. Has anyone actually seen one of these things stomping around on two legs? Token-Ring? Didn't Bilbo throw that into Mount Doom? How can IBM get away with announcing something that doesn't work?

We Macintosh owners don't want that sort of thing to happen with our machines. And despite the criticism I might have for some developers who spend months fine-tuning a Macintosh product after its announcement and before shipment, I'll hold back because most of their products turn out to be real.



ED KASHI

Gursharan S. Sidhu, Apple Computer's manager of network systems development, helped hatch AppleShare.

In fact, I am writing today not to criticize products but to praise them. In this issue we discuss two products with special promise: Apple's new file server, *AppleShare,* and *MacMovies* from Beck-Tech. Both products have been widely discussed and anticipated. Both seem to have been under development for longer than necessary. But now that they're here, the wait has paid off.

AppleShare is one of those seminal products that could have the impact of *VisiCalc,* the original spreadsheet. Yes, it is an expensive solution for the casual user, but for multiple-Macintosh environments, it is a boon. By further refining the AppleTalk network architecture and defining its data communications protocols, Apple has erected a platform upon which dozens of useful applications can be built—the sort of functionality that IBM should have defined under SNA but never did. With *AppleShare,* files can be shared among people in a network.

AppleShare also expands communications possibilities to other computers by allowing UNIX or DOS operating systems to access files on the network. Files are accessed from AppleTalk or from other networks via bridges such as *Interbridge* from Hayes.

Much as the Mac's system resources gave a boost to developers, so will *AppleShare* encourage new development. Because the file server resides in nonapplication RAM on a dedicated Mac, it is one step closer to another important revolution in

(continues)


CONSTANT COMMITMENT
JAZZ
WORD PROC.
SPREAD SHEET
COMMUNICATIONS
DATA BASE
GRAPHICS

MORE THAN A SPREADSHEET!

CONTINUOUS INNOVATION

You do more than spreadsheet calculations. Jazz® does more than that, too. Five times more than that. More than any other single piece of software made for your Apple® Macintosh™ personal computer.

Five powerful functions—not just a smattering of this and that—but five functions deep enough to stand alone: spreadsheet, database, word processing, graphics and communications.

All five so thoroughly integrated that they work beautifully together through a unique Jazz feature called HotView.

With Jazz you can direct your attention to many projects—or many parts of the same project—without changing programs. With Jazz you can revise or update information in one document or several documents instantly. With Jazz you can work the way you work best.

All of which simply means this: you can be more productive, more effective—you can do more, with Jazz, than you can with any other piece of software.

Go ahead. Get a demonstration at a Lotus authorized dealer.

Your Macintosh is capable of doing a lot more than spreadsheets. For that matter, so are you.

Lotus Jazz

Business software for the Apple Macintosh integrating spreadsheet, graphics, word processing, database and communications.

© 1987 Lotus Development Corporation. Lotus and Jazz are registered trademarks of Lotus Development Corporation. Macintosh is a trademark of McIntosh Laboratory, Inc. and is used with expressed permission of its owner. Apple is a registered trademark of Apple Computer, Inc.

THE POWER DESK

JAZZ + MAC



OverVUE. Best Database of the Year.



Choosing a database manager is no easy task. It's by far the most confusing and fiercely competitive field in Mac software. But now your buying decision is crystal clear, because the editors of MacUser and the readers of MACazine have both selected OverVUE as the Best Database of the Year.

Said MacUser (Jan. 1986), in selecting OverVUE for its **Editors Choice Award:** "OverVUE 2.0 is a deceiving program in that the more you use it, the more you realize what it can do. Power, speed and logical menus make this a dream database."

When MACazine (Jan. 1986) bestowed OverVUE with its **Readers' Choice Award,** they wrote: "We selected OverVUE because of its ease of use, clairvoyance and statistical capabilities. The fact that OverVUE was subsequently selected by our readers as Best Database simply confirms our original assessment: the product is a jewel and the customer support a bonus!"

OverVUE's clean sweep of these two prestigious awards only confirms what everyone else has been saying all along:

Infoworld (July 8, 1985): "...it is Macintosh software done right."

Icon Review (Fall 1985): "OverVUE 2.0 is our favorite database workhorse...it simply offers the best balance of power and ease-of-use available on the market today."

Nibble Mac (Oct. 1985): "OverVUE is not only easy to set up, it's the easiest for data entry. Its tools for entering repetitive data minimizes typing time."

Online Today (electronic version — Nov. 1985): OverVUE 2.0 is a heavy-duty data management tool...It does all the things a good relational database manager should."

OverVUE's features and power make it the ultimate database choice. Clearly, users and editors alike think OverVUE is something special. We think you will, too.

So visit your nearest software dealer and purchase your very own copy of OverVUE, the Best Database of the Year.

Write for information concerning our new Mail Management and Personal Finance Templates.



ProVUE Development Corp.
222 22nd Street • Huntington Beach, CA 92648 • 714/969-2431

Circle 77 on reader service card

Commentary/Jerry Borrell

personal computing—access to remote processors and multitasking. For example, the CPU of the dedicated server could act either as the raster image processor (RIP) for a low-cost laser printer or as a printer spooler, freeing up the Mac and lowering costs. After all, the system board of a Mac is remarkably like that of a laser printer, so why not remove the RIP from the printer and sell a very inexpensive laser printer?

Perhaps more important, the file server gives us one more reason to use the AppleTalk network. The editors at *Macworld* are connected via AppleTalk with an electronic-mail product. But keeping a large group "up" on the mail system is cumbersome—everyone must have the same System Folder, the electronic-mail program must reside as the start-up application, and certain add-on products don't work on the network. It's a great application, but it requires almost as much time to keep running as it saves. The LaserWriter attached to the network is a hands-down winner—even on a busy network it's better to queue up from our desks than to stand in line at the printer.

But we need more reasons to use networking, and *AppleShare* is one of the best yet. Because Apple has left plenty of functionality for other companies to define and develop, we should see even more reasons for networking. If that happens, the cost of dedicated network servers and the salaries of system administrators will be more in keeping with the systems' value.

Another ground-breaking product comes from Beck-Tech. *MacMovies* brings a near-video-quality animation and presentation tool to the Mac. It may not compare with the best IBM PC-based systems, such as *Cubicomp* or *West End Video,* but then it costs $100 instead of $10,000, and it's easy to use. And now that files can be shared, *MacMovies* should lend itself to network use, making dry memos a thing of the past.

In short, although we may sometimes think we're in no-ware land, products such as these two support our original reasons for buying the Mac. □



The best of MacPaint and MacDraw:

SUPER PAINT

SuperPaint is the most advanced graphics creation tool available for the Macintosh. The 8″X 10″ page has a layer for editing dots as in MacPaint and a layer for manipulating objects as in MacDraw.

The features read like a Christmas wish list. Full-screen editing. Multiple windows. Three levels of magnification. Reduced view. Create shapes bigger than the screen. Draw circles and squares from the center. Text that can be edited. LaserWriter fonts. Open and save MacDraw PICT and MacPaint files. Print multiple copies. Color printing with the ImageWriter II.

Best of all, for desktop publishers, there's LaserBits,™ dot-by-dot editing at 300 dots-per-inch resolution. The printed results on a LaserWriter are stunning! Paste these graphics into other programs and they retain their 300 dpi resolution!

The next generation in Macintosh graphics is here.

SILICON BEACH™ SOFTWARE

See your local dealer or send $99.00 (CA residents add $5.94 tax) plus $3.00 shipping to:
Silicon Beach Software, Inc., P.O. Box 261430
San Diego, CA 92126 or call (619) 695-6956
(Visa or Mastercard accepted)
System Requirements: Macintosh 512K, Plus, XL (1MB)

SUPER PAINT

When all you want is a masterpiece

Macintosh is a trademark licensed to Apple Computer, Inc. MacPaint and MacDraw are trademarks of Apple Computer, Inc. LaserBits is a trademark of Silicon Beach Software, Inc. ©Copyright, 1986, Silicon Beach Software, Inc.

Circle 266 on reader service card

Your Best MAC Deal



Choose From Our Top Selling Disks

Public Domain Exchange's Hottest Disks
☐ 76 40 Pagemaker Templates: business cards, letterhead, envelopes, signs, labels (different pt. sizes) $9
☐ 86 Best of Public Domain-12 programs .. $9

Art
☐ 58 Poster any size, scroll MacPaint documents $9
☐ 59 MacPaintings to print or change $9

Communication
☐ 29 Red Ryder-latest version w/doc $9
☐ 79 Appletalk Network System & Utilities . $9

Desk Accessories
☐ 24 24 prog: Mockterm., RPN calculator .. $9
☐ 36 Save screen, Corvus calendar $9
☐ 45 Compact memory,term.emul.,telegraph $9
☐ 68 Teleport, MiniDOS, icon maker $9

Fonts
☐ 56 33 fonts-bold, artsy, pictorial, etc. $9
☐ 81 18 fonts-Alexis,Cavanaugh,Candy,Boxie $9
☐ 90 Boston II-laser qlty., plus many more $9
☐ 95 Laserwriter font+Amer.Sign Lang.font $9

Games
☐ 62 Dungeon of Doom, Social Climber,etc. $9
☐ 67 Billiards, Volleyball, Juggling, etc. $9
☐ 78 Cap'n Magneto, Spacebubbles $9
☐ 88 Adventure Creator plus Blackjack $9

Home/Business
☐ 2 Card file, screenmaker, error codes ... $9
☐ 33 Multiplan templates: Business, nutrition $9
☐ 85 Excel template+demo-not pub. dom... $9

Nudes
☐ 49 Girls! X-rated pictures of women $9
☐ 66 MacNudes: Digitized photos of women $9

Programming
☐ 44 XLISP-artificial intelligence lang. $9
☐ 51,52,53 Modula 2 prgm. lang. w/doc..... $27

Spelling
☐ 70 Spell Ck: MacWrite 2.2 or any text file $9

Utilities
☐ 5 Code Cracking w/doc, FEdit $9
☐ 6 ResEd: edit fonts & icons $9
☐ 7 Switcher, disk dump, Ramtest $9
☐ 25 Banner: prints to 8" letters, paintings . $9
☐ 47 Ck drive spd., scrn.edit, dissassembler. $9
☐ 73 Calendar-personalize w/MacPaintings .. $9
☐ 84 Print ASCII,Compress files & more ... $9
☐ 87 BASIC Compiler-text files to mach.lang. $9

☐ **Book:** 150 pg. directory of disks $7.95
☐ **1 Year Membership:** book, quarterly bulletins, plus many DISCOUNTS $20
☐ **Library:** Complete set of 100 disks $695

SPECIAL OFFER!!
Any 3 Disks + Book
***Plus!* 1 Year Membership**
***ONLY* $39.95** +$4 S&H

Add $4 ($10 foreign) for shipping and handling or $2 ($5 foreign) if ordering book only. California orders add sales tax.

Enclosed $_____ by ☐Check ☐VISA ☐MC
Card No. _____ Exp. _____
Signature _____
Name _____
Address _____
City _____ State ___ Zip _____

The Public Domain Exchange
2074C Walsh Avenue, Dept. 106
Santa Clara, CA 95050

CALL NOW to order 800-331-8125
or in CA call 408-496-0624

DEALER INQUIRIES INVITED

Circle 334 on reader service card

Contributors Notes

Eric Alderman *("The Latest Word") is coauthor of* Advanced WordPerfect: Features and Techniques, *published last year by Osborne/McGraw-Hill. His column, "Word Rap," appears in the San Francisco monthly* Computer Currents. *He is also director of Whole Earth Access Computer Training.*

Daniel Ben-Horin *("Insights on Microsoft Word") is a San Francisco journalist and computer consultant who works with writers and nonprofit groups. His work has appeared in* The New Yorker, Redbook, *and* Mother Jones, *and he is a regular contributor to* Macworld *with coauthor Charles Seiter.*

Cynthia W. Harriman *("Mac Business Tools") is coauthor of* The Macintosh Advisor, *published last year by Hayden. She is director of the Boston Computer Society Summer Institute and formerly ran her own personal computer consulting and training firm. After years of teaching people to use Lotus's* 1-2-3, *she now specializes in* Excel *training. She also sits on the* InfoWorld *review board.*

Jim Heid *("Getting Started with Spooling") is a contributing editor of* Macworld *and author of* dBase Mac in Business, *published last year by Ashton-Tate Publishing Group. Each month he turns his attention to a different topic in his* Macworld *column on Mac fundamentals.*

Carol Johnson *("Kids' Stuff") is a 38-year-old freelance writer who has many of the interests and inclinations of typical 12-year-old boys. In her avocation as a semiprofessional aunt before she traded up to a Macintosh, she devoted many hours to programming children's games in BASIC on her Apple II to entertain and edify young relatives.*

Gordon McComb *("Hands-On Digitizing") is a contributing editor of* Macworld. *He has authored three books on the Mac, including* Mastering MacDraw, *due out this spring from Compute, and* Macintosh Graphics, *published in 1985 by New American Library.*

Erfert Nielson *("Moving Pictures") was a founding member of the* Macworld *staff who specialized in graphics. Now a contributing editor, she sandwiches her assignments in between treks to the Far East, the Midwest, and the Trinity Alps.*

Lon Poole *has been educating Macintosh users since the machine was introduced. He helped found* Macworld *and has contributed articles regularly. Every month he answers readers' questions in the* Quick Tips *column. He has also authored two Mac books:* MacWork MacPlay, *a beginner's workbook, and* Mac Insights, *a collection of tips, shortcuts, and enhancements recently published by Microsoft Press.*

Charles Seiter *("Insights on Microsoft Word") is a chemistry professor turned computer writer who telecommutes from his woodland home in Willits, California. His published works include* The Skeptical Consumer's Guide to Used Computers *from Ten Speed Press and books on Pascal and computerized financial planning from Addison-Wesley.* □

Be Sure You Only Buy



Software That Fits™!

There's a lot of Mac software on the market, and more coming every day. Choosing which program is right for your application doesn't have to be a gamble.

Try That Program First!

No matter how many reviews you read, no matter how many experts you consult, there's only one way to know whether a program will do what you want it to . . . run it on your machine, with your data.

Not just an hour or so in a store, and not with a "demo" disk. We're talking full-bore, flat-out, pedal-to-the-metal test drive.

FREE For Three!



Through March 31, 1987, you can try any three of the programs we offer, and we'll send along a copy of SMART ALARMS, free for you to evaluate.

Think of all the competing programs you've been wanting to try . . . Superpaint/Fullpaint, Macdraft/Macdraw, Ragtime/ReadySetGo, Double Helix/Omnis3.

What are you waiting for? Pick your programs from any that we offer, and call us for prices. Trial prices apply towards purchase, if you decide to keep a program.

Select From More Than 500 Titles!

We offer the most popular Mac software, under a trial use plan. We even include manuals. *You* pick the program, and you only pay for the trial. *You* decide whether it's worth buying. If it fits, keep it, and pay the difference. If it doesn't, send it back. Either way, you'll know for sure!

Call For Our Winter Catalogue!

Remember, we have more than 500 software titles in stock, so call and order the ones you've been thinking about. Get a hands-on tryout for a fraction of the purchase price . . . whichever ones you decide to keep, all you pay is the difference. And, remember our Free-For-Three offer when you order.



Software That Fits™

1-800-972-3018

(713) 540-2300



Save on Sony Disks!

(SS) boxed **$1.12** bulk **$1.04**

(DS) boxed **$1.60** bulk **$1.28**

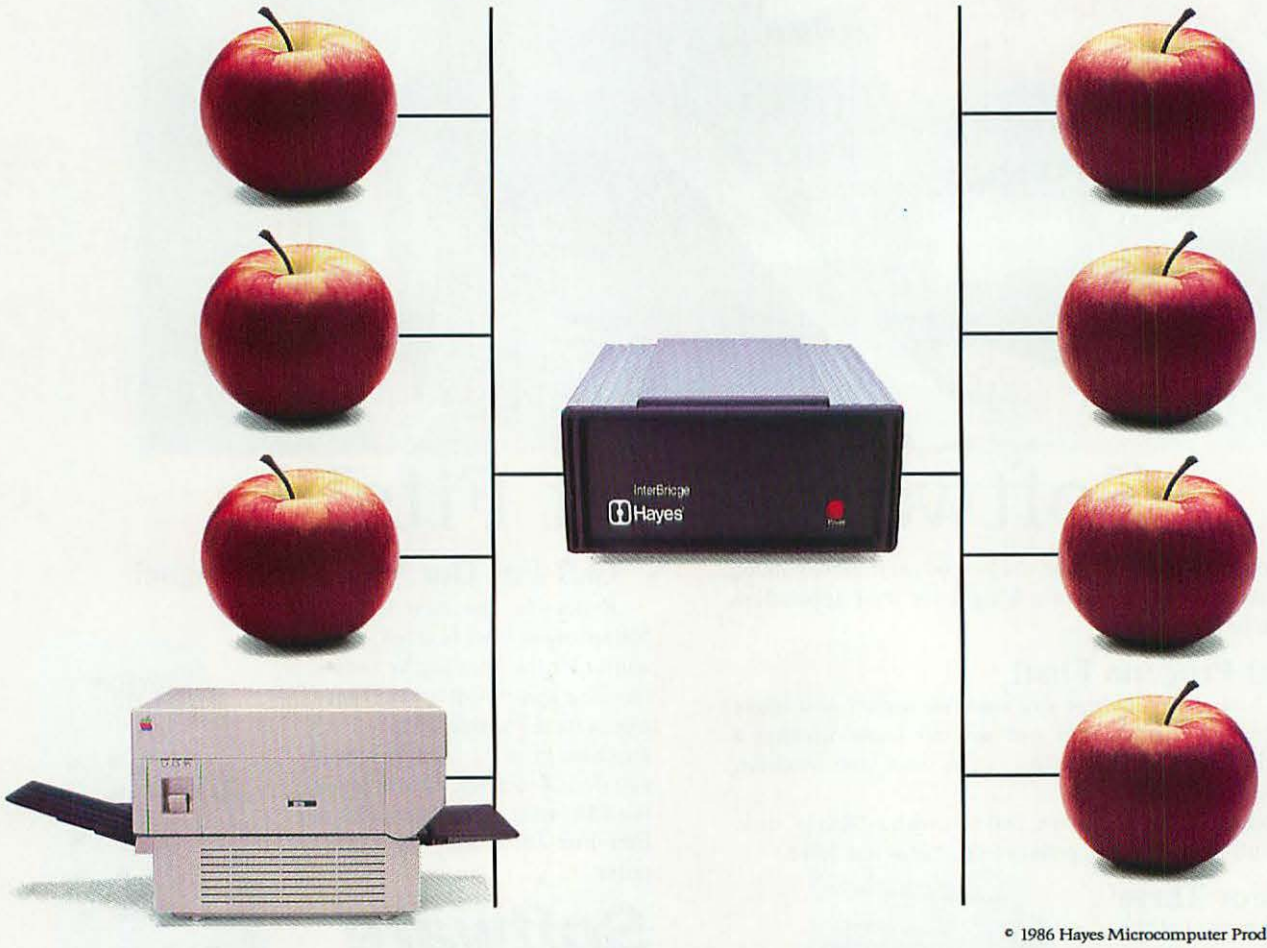
Why Pay More?

Save on disk drives and ribbons, too! Call us.

MacRENTALS™ P.O. Box 4028 • Humble, TX 77347

Circle 368 on reader service card

AppleTalk™ networks communicate better after a little bridgework.



© 1986 Hayes Microcomputer Products, Inc.

It took Hayes, the PC communications leader, to bridge the gap between AppleTalk networks.

Introducing Hayes InterBridge.™ There's nothing like it!

Now one AppleTalk network can communicate with another. Across the hall. Across town. Or across the country.

It's a local bridge, that lets you share information with other AppleTalk networks in your company. Or, if one network becomes overloaded, InterBridge allows you to split that network and split the workload.

It's a remote bridge, that lets you share information with AppleTalk networks everywhere. All it takes is one InterBridge and one Hayes Smartmodem 2400,™ on each end.

And it permits casual access to expensive peripherals by both local and remote AppleTalk networks. InterBridge allows you to access a LaserWriter,™ file servers and gateways on another network, even if they're thousands of miles away.

This feature alone can save thousands of dollars you'd otherwise spend on dedicated peripherals for each of your AppleTalk networks!

No matter how you look at it, or how you use it, Hayes InterBridge is quite a bargain. Now you can get a lot of fancy bridgework, without a fancy price.

See your authorized Hayes dealer for details. Or contact Hayes at 404/441-1617.

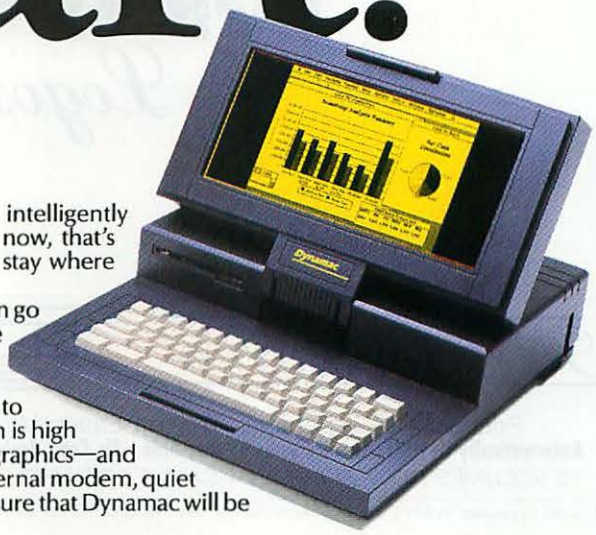
Hayes Microcomputer Products, Inc., P.O. Box 105203, Atlanta, Georgia 30092.

Hayes®

Say yes to the future

Circle 257 on reader service card

Smart.



Introducing DYNAMAC. Because the world of information doesn't sit still.

Your Macintosh™ Computer has moved you easily and intelligently through a full spectrum of desktop solutions. But, until now, that's where the movement stopped. Desktop solutions had to stay where your Macintosh did—on your desk.

With the introduction of Dynamac, however, solutions can go wherever problems or opportunities are. Not just because of the Dynamac's small, sleek physical dimensions but because of its very big performance dimensions.

Up to 40 megabytes of hard disk storage and up to 4 megabytes of main memory are built in. Dynamac's screen is high resolution gold Electroluminescent—equal to the finest graphics—and displays 46% more information than the Macintosh. The internal modem, quiet fan, high-grade surge protector and many other features ensure that Dynamac will be an office-quality resource wherever it goes to work.

Moves.



Where Macintosh leaves off, Dynamac is picked up... packed with features and packaged in a sleek black case. It goes easily across town or across the country; it comes home with you as naturally as your briefcase.

Dynamac is a hardy traveler, but also one with savoir faire. The internal 300/1200 Baud modem operates on both U.S. and CCITT international standards; compatibility at 110/220 volts, 50/60 Hz is built in...as is an E-Machine interface for a direct connection to the Big Picture™ monitor.

Dynamac is available in more than two dozen different configurations—with prices starting at just under $5,000. All options and upgrades come from a single point of warranty.

Dynamac. It lets you leave the office without getting left behind.

For additional information, please contact Dynamac Computer Products, Inc., 1536 Cole Boulevard, Suite 252, Golden, CO 80401. (303) 233-0305.

Dynamac

Because the world of information doesn't sit still.

Macintosh is a trademark of Apple Computer, Inc. Big Picture and E-Machine are trademarks of E-Machines, Inc.
Dynamac is a trademark of Dynamac Computer Products, Inc. Industrial design by \'ej\

Circle 645 on reader service card

Desktop Publishing

Awards, Certificates & Diplomas

Display Advertising

Logos & Letterheads

Førêïgñ Lângúãgès

Personal Correspondence

Newsletters & Brochures

Fluent Laser Fonts™



PostScript™ Typefaces for the LaserWriter™

Automatically Downloadable • Scale to Any Size • No Copy Protection

15 VOLUMES NOW SHIPPING • CALL FOR SAMPLES



Fluent Fonts™

Great ImageWriter™ Fonts! A two-disk set of 48 font styles designed for high-quality printing. Includes fonts for text, scientific symbols, display fonts, and many languages.

This ad was typeset with CasadyWare fonts, and output on a Linotronic 100P.

CasadyWare P. O. Box 223779 Carmel, CA 93922

TRADEMARKS: Fluent Fonts, Fluent Laser Fonts–CasadyWare Inc.; Macintosh, LaserWriter, ImageWriter–Apple Computer Inc.; PostScript–Adobe Systems Inc.

For Orders Call **(800) 331-4321**
or in Calif. **(800) 851-1986**
For Information Call (408) 646-4660
MCI Mail: CASADY 272-1695

Whatever you write –

Bring it down to your software dealer and run it through Spellswell.
THEN tell us you don't need a proofreading program!

SPELLSWELL™. THE BEST.

Spelling checker and proofreader for Macintosh.

1986 MacUser Editors' Choice Award
Best Spelling Checker – Standalone.

Works with MacWrite, Jazz, Works, Word (1.0 & 1.05), MORE, ThinkTank and text documents.
Includes 93,000 word dictionary. Medical dictionary $99.95.

$74.95 $2.50 Shipping and Handling. California Residents Add Sales Tax.

GREENE, JOHNSON INC. 321 Alvarado Street, Suite H, Monterey, CA 93940

For Information: (408) 375-2828 To order: (800) 331-4321 In California: (800) 851-1986

Spellswell is a trademark of Greene, Johnson Inc. MORE and ThinkTank are trademarks of Living Videotext, Inc. Apple is a registered trademark, and Macintosh and MacWrite are trademarks of Apple Computer, Inc. Microsoft is a registered trademark of Microsoft Corporation. Lotus and Jazz are registered trademarks of Lotus Development Corporation.

Circle 520 on reader service card

Steven Levy

MUG Shots

Can you judge a computer by its user groups? Yes—the New York group is a case in point.



We are at the November meeting of NYMUG—the New York Macintosh User's Group. A small auditorium. People selling public domain software and shareware disks at the tables in the back; a Mac and a mike in front. The meeting is called to order late, and the 250 or so people attending—one-fourth of the total membership—are slow to quiet down.

The president is a bearded man in a business suit. Quick announcements: Remember to bring your membership cards to dealers who offer us discounts. There's a vacancy on the club's board of directors (one more burned-out volunteer). Our First Annual Mac Fair is in less than two weeks. Our electronic bulletin board is operating again, and yes, you'll probably get a busy signal when you call it. Try calling during weekdays.

He yields to a succession of speakers who briefly announce the locations and discussion topics for various Special Interest Group (SIG) meetings later this month. Anyone needing help in setting up a database can drop by the DB group meeting in Brooklyn. The Assembler group will discuss "Debugging on the Mac," apparently not for the first time. The Business SIG will feature a guest speaker at its session in the Wall Street area. Music SIG members meet this month at the chic Limelight Disco to witness Macintoshes running the sound system. The Novice SIG meets on Staten Island this month—"A little out of the way, but worth it." The Artificial Intelligence group "kind of ran out of software about six months ago," so is now meeting with the AI SIG of the IBM PC user group. This elicits scattered hisses.

Now comes the period when anyone can ask a question or speak out, as long as no more than 60 seconds are consumed.

"Who knows the name and address of the author of *Captain Magneto?* I want to send him the money!" Someone has the info.

"Did Micah file for Chapter 11 today?" Yep.

"Has anyone here worked with kerning tables?" See me during the break.

"Is there any way to get information about *Desk Organizer?*" Ask the publisher. No, they're out of business. Yeah, but the authors took over the program. I know, but *they're* out of business, too.

"Can someone explain the difference between a Bernoulli and a hard drive?" Many can, and do.

"What's the trick for addressing envelopes with a LaserWriter?" Use #10 bond envelopes.

And so it goes, for 40 minutes. Then comes the featured product demo, which is *not dBase Mac,* as promised in *The Mac Street Journal,* the club's newsletter. Ashton-Tate sends regrets, and is replaced by Microsoft and its announced-but-not-released *Word* 3.0.

Lights dim, the demo begins, and the questions fly. "Does it automatically repaginate? Can we see columns on screen? Is it . . . faster?"

Yes. Applause. A night at the user group.

You've Seen One . . .

Even though NYMUG is one of the larger Macintosh user groups and has some unique characteristics (how many SIGs convene at the Limelight?), the November NYMUG meeting was essentially no different from hundreds of other Macintosh group sessions across the country. From the mammoth Show Page group in San Francisco to the modest yet enthusiastic Macintosh Apple Corps of Wilmington, North Carolina, Mac people are Mac people. As Apple software despot Guy Kawasaki, who has visited dozens of user groups, says, "You could drop me in any

(continues)

Choose from our Collection of Select Macintosh Products

The Icon Review

S H O W C A S E

MacSnap Internal Upgrades

From Dove Computer Corp.

More memory means extra power for big jobs; run those huge spreadsheets, CAD packages, and other memory-hungry programs with room to spare for a RAM disk (or even under Switcher).

The two unique CMOS versions consume less power and produce less heat than standard memory, and they take up no extra space, so you can use them with other internal expansions like the MegaScreen. RAMSnap software lets you create a RAM disk, the fastest form of mass storage.

Requires installation by qualified technician

524 $149
Expands 512 to 1 meg

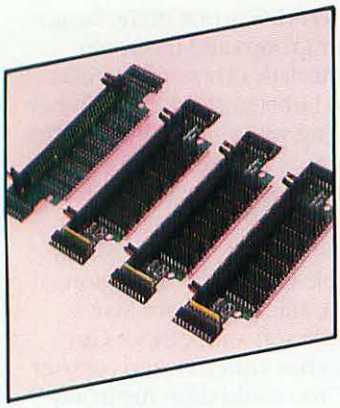
Plus 2 $269
Expands Mac Plus to 2 meg

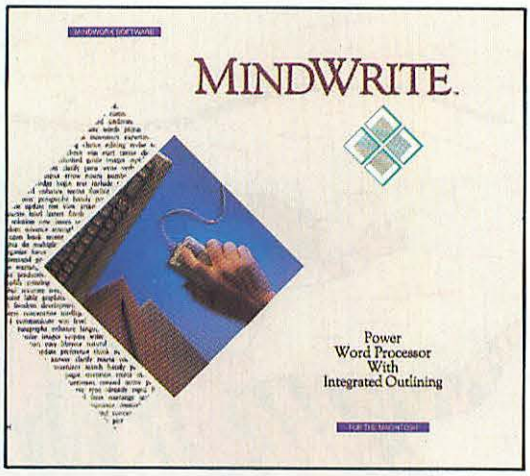
Plus 2H CMOS
Expands Mac Plus to 2 meg
$669

Plus 4H CMOS
Expands Mac Plus to 4meg
$1299

SCSI Port $67
Adds SCSI to 512K new ROM

RAM Snap $37





MindWrite $89

From MindWork Software

This powerful yet easy-to-use software offers outlining where you need it most — fully integrated within a powerful word processor. Other unique features include:

Multiple Windows — limited only by available memory • Auto-Numbering — watch MindWrite number and renumber document sections automatically • Drag Text — easier than cut and paste • Multiple Clipboard — accumulates ALL cuts and copies • Multiple Selection — to act on many elements simultaneously • File Conversion — reads MacWrite, ThinkTank, and Text Only files; writes MacWrite and Text Only files • Mark — track revisions easily with time and date stamping • Search — most extensive available • Word Count — counts characters, words, and paragraphs instantly.

Order MindWrite to add a dramatic new dimension to your Mac's word processing capabilities.

Requires 512K or Mac Plus; supports ImageWriter & LaserWriter

Orders only
800/228-8910
In California
800/824-8175

MONDAY THRU FRIDAY 6 A.M. TO 8 P.M.
SATURDAYS 8 A.M. TO 4 P.M. (Pacific Time)

Order by mail:
P.O. Box 911, Dept. MW037
Monterey, CA 93942-911

These low prices good through March 31, 1987 only!

Direct 1200 Modem

From USRobotics

$119

A breakthrough in technology gives you remarkable 1200 bits-per-second (bps) speed at a remarkably low price. If you're still communicating at 300 bps, you'll be amazed at the difference speed makes: files that took you two hours to transfer can be sent in half an hour using the Direct 1200.

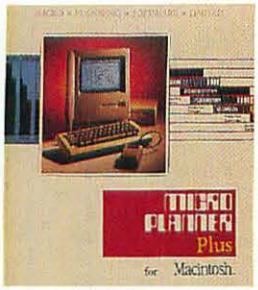
This sleek modem has auto-dial and auto-answer capability, and it's fully Hayes compatible, so it works with all the best telecom software (it can communicate with 300-bps modems, too!). Its built-in speaker lets you



hear your call go through, while transmit-data and receive-data indicators let you watch as your information is transferred — you always know what's going on. Volume and power are controlled conveniently from the front. Wait less, do more with Direct 1200.

Requires Mac (Plus) cable

Icon Review



Micro Planner Plus

From Micro Planning Software

$329

This is the most powerful yet easy-to-use project and resource management software available on any micro. Save time and money by minimizing delays with its critical path analysis and resource management capabilities. Highlight tasks most likely to cause delays while examining and organizing resource constraints. Have customized Pert, Gantt, and other management reports drawn for you with the option for embellishment in MacDraw.

Requires 512K, Mac Plus, or XL

PC MacKey

From Tangent

$119

The PC MacKey keyboard uses short-throw keys that have a distinctive action. As you type, your fingers feel a "click," which makes typing easier, faster, and less stressful over a long period. PC MacKey's layout matches that of the IBM PC; and, you get a numeric keypad and function keys that can be assigned macros by programs like Tempo. New version makes installation simple.





Fanny Mac

From Beck-Tech

$79

This dependable cooling fan not only reduces your Mac's operating temperature as much as 50°, the built-in surge suppressor keeps your data safe from destructive power spikes. It fits neatly into the handle of your Mac and pops out quickly for easy transport, and its "pass through" power assembly means you need only one power socket for both your Mac and Fanny Mac. Prolong the life of your Mac with Fanny Mac!

Western Computer
Big Mack Twinpack *SPECIAL* $1399
20 meg disk with tape backup

Accessories

Backup Tapes **$18-$28**
We now carry cartridges to fit most tape backup systems; call for details

Bernoulli Cartridges
- 5 Meg (3 Pack) $99
- 10 Meg (3 Pack) $189
- 20 Meg (3 Pack) $275

From Iomega
- 20 Meg (3 Pack) *NEW* $259

From Dysan

Beck-Tech
Fanny Mac $79
Surge suppressor built in

Cables/Adapters **$15-$40**
Make the right connection! We have a full line of quality cables; call for details

Cambridge Automation
Numeric Turbo $109

Computer Accessories
Power Director *NEW* $66
PowerLine One *SPECIAL* $9
PowerLine Six *NEW* $33
PowerLine Strip $39

Computer Friends
MacInker — includes ink $44
Re-inks ImageWriter cartridges only

Data Spec
DB9 Switch *NEW* $29
Works w/128 or 512K; requires Mac Serial DB9 cable.
Mini Din 8 Switch $39
Works w/Mac Plus; requires Mac Plus to IW II cable

Disk Holders/Storage
ACCO
Disk Holder (holds 80) $16

Eichner
Disk Holder (holds 60) $25
Disk Holder (holds 60) w/lock $33

Kalmar Inc.
RollTop Cabinet-45 *NEW* $23
RollTop Cabinet-90 *NEW* $39
RollTop Cabinet-135 *NEW* $49
Teakwood rolltop disk holders

MicroStore
disk•book-10 $11
disk•book-32 $22
disk•book-Plus $22
Traveller-4 *NEW* $5
Traveller-8 *NEW* $7
Traveller-12 *NEW* $9
Highest quality nylon disk carriers

Smith & Bellows
Mahogany Disk Case (holds 90) $28

Dust Covers **$7-$20**
We carry quality anti-static nylon covers for your Mac & all peripherals

Ergotron
MacTilt $75
Swivel stand for Mac and 2nd drive
MacTilt *for MegaScreen* *NEW* $80
MacTilt *for Radius Monitor* *NEW* $80

Hayden Publishing
Macintosh Advisor (book) $16

Honeywell/Disk Instruments
quadLYNX Trackball $99

Icon Review
Disk Pak (holds 10) $3
Head Cleaner $15
MacCracker $20
For qualified technicians only

I/O Designs
Printer Ribbons
- Black, 4-Pack $18
- Color, 4-Pack $19

Red, Yellow, Black, or Green
- One 4-Color (IWII) $12

Iomega
Cleaning Kit *for Bernoulli Boxes* $75

Kensington
AppleTalk Cable Clips $1
AppleTalk Connector Clip $1
Control Center *SPECIAL* $62
Mouse Pocket $8
Polarizing Filter *SPECIAL* $31
Surge Supressor $35
System Saver Mac *SPECIAL* $65
Quiet fan, surge suppressor & more!

Kraft
QuickStick *NEW* $42
Mac joystick

MacHelp Products
MacHELP Reference Cards $12
Cards perch on Mac or keyboard providing quick reference. Choose from Excel, Jazz, MacWrite/MacPaint, MultiPlan, Word. Be sure to specify program name & card style when ordering.

Mountain Equipment, Inc.
Mac or Mac Plus Carry Bag $89
ImageWriter I or II Carry Bag $69

Moustrak
MousPad—7"x9" $8
MousPad—9"x11" $9

Qualitas Trading Co.
Neos Mouse *NEW* $49
Better fit to hand, moves faster, smoother

R.H. Electronics
Mac 'N Frost Fan $65

ScanCoFurn
MacTable 42 *NEW* $339
Beautiful ergonomic work table

Tangent Technologies
PC MacKey $119
IBM-like keyboard with function keys

Diskettes

Sony DS/DD $25
Sony SS/DD $17

Icon Review is dedicated to supplying select Macintosh software, peripherals, and accessories at the lowest discount prices. Call toll free or order by mail.

Orders only
800/228-8910
In California
800/824-8175

CUSTOMER SERVICE 408/625-0465

MONDAY THRU FRIDAY 6 A.M. TO 8 P.M.
SATURDAYS 8 A.M. TO 4 P.M. (Pacific Time)

Order by mail:
P.O. Box 911, Dept. MW037
Monterey, CA 93942-911

OUR POLICIES

- We accept MasterCard and VISA with no added service charge. Private and company checks accepted; for faster delivery, send certified check, cashier's check, or money order.
- Sorry, we cannot accept C.O.D.'s.
- We accept corporate and school purchase orders for a minimum of $300 from qualified institutions. Mail purchase orders to Icon Review P.O. Box 911, Dept. MW037, Monterey, CA 93942-911.
- California residents add 6% sales tax.
- All goods are new and guaranteed by the manufacturer to work, but we cannot guarantee machine compatibility. Due to software copyright laws, all sales are final. Defective products will be replaced; call 408/625-0465 to request a Return Authorization Number.
- Shipping charges calculated by weight. For economy we ship UPS Ground ($5 min.); for faster service we recommend Federal Express Standard Air ($10 min.). Next day service is also available via Federal Express Priority One ($25 min.). SPECIAL SHIPPING: Canada, add 8% ($15 min.). FOREIGN ORDERS add 21% ($35 min.). All payments in U.S. dollars only.
- Foreign orders subject to FTC restrictions; call for details.
- Prices and availability subject to change.

Macintosh is a trademark licensed to Apple Computer, Inc. Icon Review is a division of MindWork Enterprises, Inc. MindWork and Icon Review are trademarks of MindWork Enterprises, Inc. • Icon Review, published by MindWork Enterprises, Inc. 6750 Mid Valley Center, Carmel, CA 93923 © 1987 MindWork Enterprises, Inc.

NATIONAL ACCOUNTS

Call today to find out how our National Accounts Program gives organizations like yours the benefit of **Icon Review's** unique brand of service and support. For more information, call 408/625-1957.

Circle 272 on reader service card

Winter Catalog features more than 300 Mac Products

Icon Review is dedicated to supplying select Macintosh software and peripherals, quick service, and discounted prices. To receive your *FREE* catalog and advance notice of special sales, mail this coupon today!

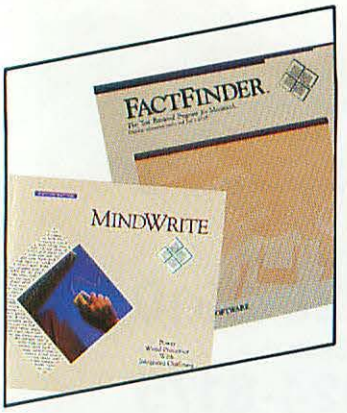
ICON REVIEW CATALOG
P.O. BOX 911 • Dept. MW037 • Monterey, CA 93942-911

Name _____

Company _____

City _____ State _____ Zip _____

Please allow 2-3 weeks for delivery



MindWrite/Fact-Finder Bundle

From Icon Review

$109

We've included two of our best-selling personal productivity tools in one specially priced bundle! MindWrite is a power word processor with integrated outlining that has too many truly innovative features and benefits to list here; FactFinder stores, organizes, and cross-references notes and information so they're always there when you need them. If you've been meaning to get organized, now's your chance!
MindWrite works w/512K, Mac Plus & Switcher; FactFinder works w/any Mac

Neos Mouse

From Qualitas Trading Co.

$49

A natural evolution in mouse technology, with a reverse-tapered shape that fits your hand without tiring your wrist. Teflon pads combine with slightly higher cursor ratio to give you a free-moving, smooth feel that lets you get around the screen faster. The buttons actuate true micro-switches (not a stamped-metal spring) to give you the tactile feedback of a distinct "click." You'll find that you work faster, more surely with the Neos Mouse.





Mirror 40/40

From Mirror Tech

$2695

The Mirror 40/40 SCSI Drive gives you 40 megs of hard-disk storage and 40 megs of tape backup. Sheer size makes this drive perfect for sharing among several users — even when their applications are huge. And backups are so easy that you can depend on your data being there when you need it. MacServe networking software (a $250 value) is included free. You chose the Mac for its potential, choose a Mirror 40/40 to realize that potential.
Requires Mac Plus; SCSI cable included

MacLightning 2.0

From Target

$53



Installed as a desk accessory, MacLightning checks spelling as you type (beeping when you misspell a word) or checks selected text or an entire document after it's entered. MacLightning uses an 80,000-word dictionary and boasts some new features: it now looks up words phonetically ("newmatic" will give you "pneumatic") and checks spelling from the Clipboard — great with PageMaker. No wonder it's our best-selling spelling checker!
Requires 512K & 2nd drive or Mac Plus

Legal Dict. $53
Medical Dict. $53
Thesaurus $29

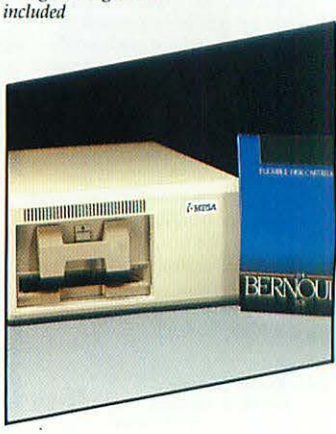
Libraries require MacLightning

5-Meg Bernoulli Box

From Iomega

$499

Now's your chance to purchase a Bernoulli Box with an original retail value of $1,495 at a one-time low price! This 5-meg serial drive boasts the same unlimited storage and unrivaled security of the larger drives and works with a 512K or Mac Plus. It's 3 to 5 times faster than a floppy drive, comes with a backup utility, and sets up in minutes. Supply is limited, so hurry!
Requires 512K or Mac Plus & 5-meg cartridge; cable included



Solutions
Glue $44
Adds "print to disk" capability to most Mac applications
State-of-the-Art
Electric Checkbook *SPECIAL* $29
SuperMac Software
Super LaserSpool *NEW* $31
SuperSpool *NEW* $79
Survivor Software
MacMoney *NEW* $40
Voted "Best New Personal Finance Program"
Symmetry
Acta $39
Desk accessory outliner
PictureBase $45
Target Software
MacLightning $53
• Legal Dictionary $53
• Medical Dictionary $53
• Thesaurus $29
Voila *Desk accessory outliner* $59
Think Technologies
LightspeedC $129
Lightspeed Pascal $89

True BASIC, Inc.
True Basic 1.2 $89
Algebra Utility $36
3D Graphics Library $36
Requires True Basic 1.2
True Stat Utility $36
T/Maker
ClickArt Business Image $29
ClickArt Effects $29
ClickArt Holidays $29
ClickArt LaserLetters *EACH* $47
• Bombay, Plymouth, or Seville
ClickArt Letters $29
ClickArt Letters/2 $29
ClickArt Personal Graphics $29
ClickArt Publications $29
WriteNow for the Mac $109
Fast word processor

Education/ Entertainment Software

Broderbund
Ancient Art of War $27
Knights, Archers, Cowboys, and more!
Davidson & Assoc
Math Blaster $29
Speed Reader II $49

First Byte
First Shapes $32
KidTalk $39
MathTalk $39
SmoothTalker $49
Speller Bee $39
Great Wave
KidsTime *SPECIAL* $29
Infinity
Grand Slam Tennis $27
Requires 512K or Mac Plus
Microsoft
Flight Simulator *SPECIAL* $32
Mindscape
Balance of Power $30
ComicWorks $49
Sophisticated graphics tool
Uninvited $32
Practical Computer Applications
MacGolf *SPECIAL* $36
Requires 512K or Mac Plus
QED Information Systems
Typing Made Easy $35
Improve your typing skills
Qware, Inc.
OrbQuest $27
Rubicon
Dinner at Eight $32
Silver Palate Collection $29
Requires Dinner at Eight
Silicon Beach
Dark Castle $29
World Builder $45
Create your own games
Spectrum HoloByte
Orbiter *SPECIAL* $27

Communications

CompuServe
Subscription Kit *SPECIAL* $25
Data Viz
MacLink Plus w/cable $159
File transfer IBM to Mac
Farralon
PhoneNet for 128/512K $39
Connects Mac 128/512, LaserWriter, or AppleTalk devices
PhoneNet for Mac Plus $39
Connects Mac Plus or ImageWriter to Network
Phone Net/AppleTalk Adapter $6

Hayes
Smartmodem 1200 *SPECIAL* $399
Smartmodem 2400 *SPECIAL* $629
Smartmodem Bundle $449
SmartCom II *SPECIAL* $89
Infosphere
MacServe (per server) $250
Hard disk partitioner, network disk server, print spooler & more!
Software Ventures
MicroPhone $CALL
Best communications software
Think Technologies
InBox Personal Connection $99
New non-dedicated version!
InBox Starter Kit $279
Non-dedicated version
USRobotics
Courier 1200 Modem $249
Courier 2400 Modem $499
Direct 1200 Modem *NEW* $119
Hayes compatible—Super value!

Hardware

Dove Computer Corp.
MacSnap 524 *NEW* $149
MacSnap Plus2 *NEW* $269
MacSnap Plus2H COMS *NEW* $669
MacSnap Plus4H CMOS *NEW* $1299
MacSnap SCSI Port *NEW* $67
Internal upgrades; require installation by an Apple dealer
Ergotron
MacBuffer 256K $259
MacBuffer 512K *SPECIAL* $365
MacBuffer 1024K (1MB) $569
Save time while printing on ImageWriter
MacBuffer LW/1 meg $CALL
MacBuffer LW/2 meg $CALL
Finally—Speed your LaserWriter printing!
Koala
MacVision $175
MacMemory, Inc.
MaxPlus *SPECIAL* $299
—Upgrade your Mac Plus memory to 2 meg. Plugs into standard SIMM sockets; includes MaxChill fan, MaxRAM/MaxPrint. ***Requires installation by technician.***
Micrographic Images
MegaScreen Plus *NEW* $2499
Requires Mac Plus

Summagraphics
MacTablet—6"x9" $329
MacTablet—12"x12" $449
Precision drawing and tracing
Thunderware
ThunderScan $189
T'Scan/Mac Plus Adapter *NEW* $49
Improved adapter for Mac Plus
T'Scan IW II Cable $18
Needed for use w/Mac Plus only

Disk Drives

AST
AST 2000 *SPECIAL* $1949
20 Meg Winchester; 20 meg tape backup
AST 4000 *SPECIAL* $4849
74 Meg Winchester; 60 meg tape backup
Ehman Engineering
800K External *SPECIAL* $179
20 Meg SCSI *NEW LOW PRICE* $699
Iomega
Bernoulli Box for Mac Plus
• 10 Meg SCSI Drive $1399
• 10+10 Dual SCSI Drive $1859
• 20 Meg SCSI Drive $1899
• 20+20 Dual SCSI Drive $2359
See Accessories section for required cartridges
SPECIAL PURCHASE!
• Bernoulli 5 Meg Serial Drive $499
Bernoulli technology at bargain price!
• Cheetah 20 Quick Drive $699
• Cheetah 45 Plus *SPECIAL* $999
Quality drives—super price!
Mirror Technologies
MagNet 20x—SCSI *SPECIAL* $849
MagNet 30x—SCSI $949
MagNet 30x w/ MacServe $995
Mirror 800K External Drive $229
Mirror 20 Tape Backup $929
Mirror 40/40 $2695
MagNet 85x *NEW* $4595
PCPC
MacBottom SCSI *SPECIAL* $869
Voted best peripheral of 1986
MacBottom Serial *SPECIAL* $869
ProAPP
20 Meg Drive $849
For any Mac; specify type when ordering
40S Drive $1699
Incredibly fast!

P.O. Box 911 • Dept. MW037
Monterey, CA 93942-911

In California
800/824-8175

New This Month!

Thunder From Batteries Included $33
Award-winning spelling and style checker.

MacMoney From Survivor Software $40
MacUser's best new personal accounting program for 1986.

MegaScreen From MicroGraphic Images $2499
A 19" diagonal monitor — great for page layout!

InBox From Think Technologies $99
New version no longer requires a dedicated Mac.

MacTilt for MegaScreen From Ergotron $80

MacTilt for Radius From Ergotron $80
Adjust your MegaScreen or Radius FPD to the most comfortable viewing angle.

BPI Entry Series From BPI Systems, Inc. $299
Powerful and versatile accounting for businesses.

CalendarMaker From CE Software $21
Create attractive personalized calendars easily.

DrawArt/Vol. II From Desktop Graphics $43
New volume of 300 easily customized images that include sports, people, objects, and business clip art.

Japanese Clip Art From Qualitas $79 each
Two "scrolls" of beautifully detailed drawings derived from Japanese themes.

Power Director From Computer Accessories $66
Quality 4-outlet, case-type surge suppressor.



Japanese Clip Art

From Qualitas Trading Co.

These two "scrolls" contain beautifully detailed drawings derived from Japanese themes, as well as 4 Japanese fonts each.

"Heaven" features demons, landscapes, masks, religious symbols, calligraphy, and mythical creatures — 174 images in 14 MacPaint files.

"Earth" contains samurai, flowers, landscapes, animals, temples, symbols and designs, and calligraphy — 193 images in 11 files. A unique addition to any clip art library.

Requires MacPaint or FullPaint

Heaven/Scroll 1 $79
Earth/Scroll 2 $79



MORE

From Living Videotext

$159

The first idea organizer/presenter for the Mac creates presentation graphics by automatically generating bullet or tree charts from outlines. Outlining tools and installable templates make managing ideas a snap, while multiple windows and easy export to other programs increase MORE's flexibility. Print charts on paper or as transparencies for instant overhead slides; create outlines; manage schedules. Do more with MORE.

Requires 512K or Mac Plus & external drive or hard disk

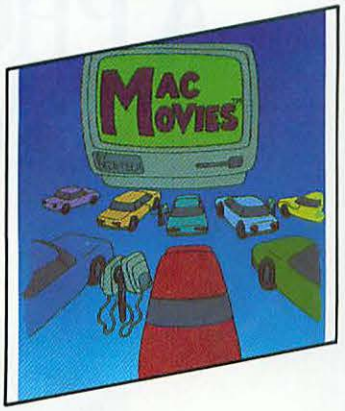
MacMovies

From Beck-Tech

$69

MacMovies is an easy-to-use graphics animation program that lets you make movies with your Mac. Create images in FullPaint, EZ-3D, ThunderScan, any MacPaint-compatible software, and MacMovies compiles them and plays them back — seamlessly — at speeds of up to 30 frames/sec. Sophisticated enough to satisfy professional animators and simple enough to entertain the would-be moviemaker in all of us. Now anyone can make movies!

Requires 512K or Mac Plus; 1 meg memory recommended but not essential



Software

Affinity Microsystems
Tempo — *SPECIAL* $59
Powerful macros with logic branching

ALP Systems
MacProof 2.0 — *SPECIAL* $99
Checks spelling, punctuation, and usage; 93,000-word dictionary

Altsys
FONTastic Font Editor — $27

Ann Arbor Softworks
FullPaint — *SPECIAL* $55

Batteries Included
Thunder — *NEW* $33
Award-winning spelling and style checker

Beck-Tech
MacMovies — *NEW* $69
Easy-to-use animator; requires 512K or Mac Plus

Blyth Software
Omnis 3 Plus — *SPECIAL* $289
Omnis 3 Plus Multi-User — $629
Powerful relational database

Borland
Reflex — *SPECIAL* $59
Interactive database w/many display formats
SideKick with PhoneLink — $59
Desk/phone/schedule organizer; dials too!
Turbo Pascal — $66

BPI Systems
BPI Entry Series — *NEW* $299
Complete double-entry accounting system for business

Broderbund
The Print Shop — $53
Make cards, banners & signs

Casady Company
Fluent Fonts — $29
Fluent Laser Fonts — *EACH* $49
Now 15 font selections to choose from

Central Point Software
Copy II Mac — $20
Includes hard disk install

CE Software
CalendarMaker — *NEW* $21
MacBillboard — *NEW* $24
Make signs, banners, billboards
MockPackage Plus — *NEW* $24
Includes MockTerminal, MockPrinter, MockChart & more

Cognitive Concepts
MacFill-In — *SPECIAL* $21
Preformatted business forms

Cortland
TopDesk — *SPECIAL* $35
Seven handy desk accessories

Cricket Software
Cricket Draw — $179
Powerful object-oriented drawing program w/text-editing; requires 512KE or Mac Plus
Cricket Graph — $129
The best!
StatWorks 1.3 — $79
Great value with best statistical graphs

Desktop Graphics
DrawArt/Vol. I — $29
DrawArt/Vol. II — *NEW* $43
Quality clipart in MacDraw format
DrawForms — $30
Requires MacDraw
MacForms — $42
Requires MacPaint

Dove Compter Corp.
RAM Snap — *NEW* $37

Electronic Publisher
MacMatbook/Vols. 1-3 — $69
MacMatbook/Vols. 4-6 — *NEW* $69
MacMatbook/Vols. 1-6 — *SPECIAL* $125
Indexed clip art; requires PictureBase

Enabling Technologies
Easy3D — $89
Pro3D — *SPECIAL* $249
Generates 3D PostScript graphics

Execucom
MindSight — $179
Business planning and decision analysis

Forethought
FileMaker Plus — *SPECIAL* $159
Award-winning data manager

FWB Software
Hard Disk Backup — $39
Hard Disk Partition — $39
Hard Disk Utility — $57

Greene, Johnson Inc.
Spellswell 1.3 — $55
New version does more

Ideaform
MacLabeler 2.2 — $29

Impulse
Studio Session — $69
Award-winning music program

Infosphere
LaserServe (per user) — $125

Innovative Data Design
MacDraft 1.2 — *SPECIAL* $165
Most powerful drafting tool for the Mac

I/O Designs
ColorChart — $32
ColorPrint — $25

Kent Marsh
MacSafe — $49
Sold in USA only

Layered
Notes... — *EACH* $42
For Excel, Jazz, PageMaker, or Works

Logisoft/Nolo
WillWriter — *SPECIAL* $27

Living Videotext
MORE — *SPECIAL* $159
Outlining with presentation graphics
ThinkTank 512 — *SPECIAL* $99

MacAmerica
LaserSpool — $79

MacMaster Systems
Fedit Plus 2.0 — $39
File recovery tool for the Mac Plus

MacMemory, Inc.
MaxRAM/MaxPrint — *SPECIAL* $33
Save time with RAM disk and print spooler

Manhattan Graphics
ReadySetGo 3 — *NEW* $169
Advanced page layout

Micro Analyst
Mac Zap — $39
Hacker's disk utility and more!

Micro Planning
Micro Planner Plus — $329
Enhanced version, requires 512K

Microsoft
Basic 3.0 — $69
Basic Compiler — *SPECIAL* $115
Chart — $75
Excel 1.03 — $225
File 1.04 — $112
Fortran — $169
Multiplan — $107
Word 3 — *NEW* $245
Works 1.0 — *SPECIAL* $179

Mindscape
GraphicWorks — *SPECIAL* $49

MindWork Software
FactFinder — $49
MindWrite — $89
Word processor for power writers!
MindWrite/FactFinder Bundle — *SPECIAL* $109

Monogram
Dollars and $ense — $81
Forecast — $41

Nevins Microsystems
TurboCharger 2.0 — $39
Speedy disk cache; requires 512K or Mac Plus

New Canaan
Mac Disk Catalog II — *SPECIAL* $32

Odesta
Double Helix — *SPECIAL* $279
Helix 2.0 — *SPECIAL* $99
MultiUser Helix — *NEW* $445
Powerful databases require 512K or Mac Plus

Orange Micro
Ragtime — $249
Page layout with spreadsheet, word processor, and more!

PBI
HFS Locator Plus — $27

PCPC
HFS Backup — $29

Personal Bibliographic
Professional Bibliographic System — *SPECIAL* $199
- BRS — $149
- Dialog — $149
- MEDLARS — $149

ProVUE
OverVUE 2.0 — $149
Fast, powerful, easy-to-use database
- Mail Manager Template — $29
- Personal Finance Template — $29

Qualitas Trading Co.
Japanese Clip Art — *NEW*
- Scroll 1/Heaven — $79
- Scroll 2/Earth — $79

Requires MacPaint or FullPaint

Satori Software
Bulk Mailer — *NEW* $99

Silicon Beach
Silicon Press — $42
SuperPaint — *SPECIAL* $55
Bit map and object graphics

Softstyle
Colormate — *SPECIAL* $49
Colormate Art — $29
Printworks — $49

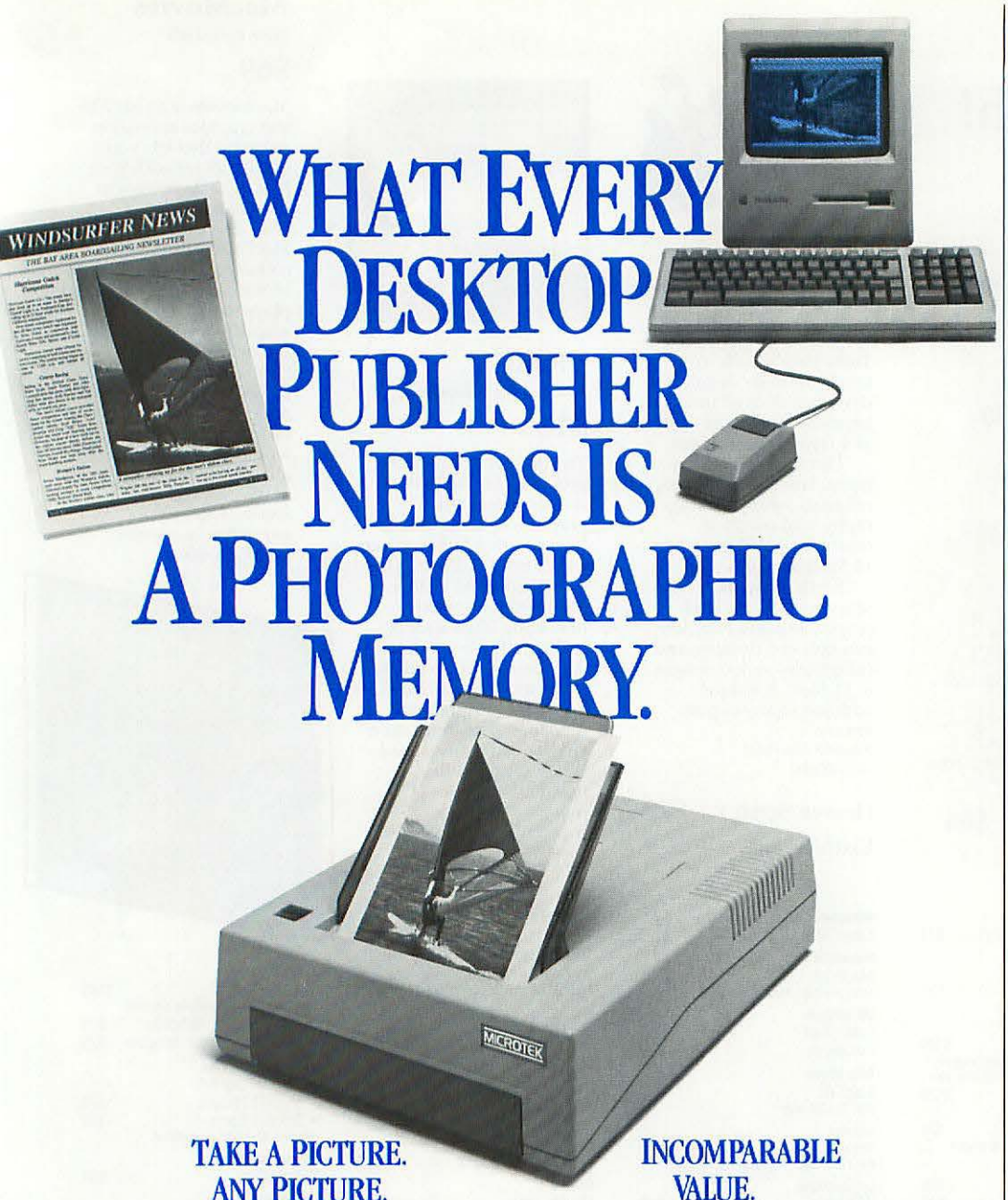
Softview, Inc.
MacInTax California — *NEW* $33
MacInTax Federal — *NEW* $74
Simplify your 1986 tax preparation

Software Discoveries, Inc.
Record Holder — $42
A full-function file/data manager

Icon Revi

Orders only

800/228-8910



WHAT EVERY DESKTOP PUBLISHER NEEDS IS A PHOTOGRAPHIC MEMORY.

TAKE A PICTURE. ANY PICTURE.

It can be a photograph, artwork, a technical drawing. Feed it into the Microtek Intelligent Image Scanner, and it's on your computer screen almost instantly. Then you can edit, paint, and cut and paste it, and reproduce the sharpest image your laser printer can handle.

MACINTOSH OR IBM COMPATIBLE.

The Microtek Scanner can be used with either system. And naturally, it works with the most popular publishing software for both.

INCOMPARABLE VALUE.

For a scanner this sophisticated, you'd expect to make a heavy investment. But the Microtek Image Scanner is less than the cost of a laser printer and can pay for itself in no time.

It's simply the best way to improve your publishing image. For more information call 800-654-4160 (Inside California 213-321-2121).

MICROTEK

16901 S. Western Ave., Gardena, CA 90247.

Circle 585 on reader service card

user group's room and I couldn't tell where I was, except maybe from the accents. They all ask the same questions. And they all love the Mac."

Undoubtedly true. But the brief history of Macintosh user groups, or MUGs, is not without its lovers' quarrels, sometimes bitter ones. The intense user is part consumer (impossible-to-satisfy), part lover (semirequited). The fact that Apple itself was slow to support the groups—a tardiness it has remedied with the appointment of a user group evangelist and staff—did not help matters. Doubts about the Mac, and the vagaries inherent in volunteer-run organizations, have also caused ripples in the user community.

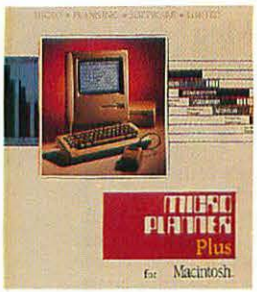
But after a bumpy start, the MUG world is thriving. That's good news for the Mac and for you. If you call 1-800/538-9696, extension 500, and find out the name of your local group, you can see for yourself.

The Big Apple Goes Macintosh

Lee Felsenstein, the computer designer responsible for the pioneering SOL microcomputer and the Osborne personal computers, once remarked that a successful computer is one that generates an active user group; by this standard the Mac was destined for success within weeks of its release. The spontaneous eruption of MUGs in 1984 was unprecedented. In New York, things began when two nonprofit fundraisers, Cheryl Sandler and Steve Doochin, bought a 128K Macintosh. Spurred by the vision that for yuppies like themselves the Mac was manna from silicon heaven, they put out a call to fellow nontechies who had discovered this wonder. Eighteen people met in a boardroom in May 1984. For the June meeting, the boardroom was quite crowded with 54 attendees. The third meeting was held in a large room at a local college: over 100 attended. By the fall, the meetings were being held in an auditorium seating 450, and even then there was standing room only. Almost 1000 members joined during that first year, and as Doochin describes it, "We were riding on the back of a tiger."

Similar explosions occurred in Berkeley, Chicago, Los Angeles, Boston, and other cities. The proliferation was due partly to the excitement people felt about owning Macintoshes—since their friends thought they were crazy for getting so worked up over a machine, Mac users

(continues)



Micro Planner Plus

From Micro Planning Software

$329

This is the most powerful yet easy-to-use project and resource management software available on any micro. Save time and money by minimizing delays with its critical path analysis and resource management capabilities. Highlight tasks most likely to cause delays while examining and organizing resource constraints. Have customized Pert, Gantt, and other management reports drawn for you with the option for embellishment in MacDraw.

Requires 512K, Mac Plus, or XL

PC MacKey

From Tangent

$119

The PC MacKey keyboard uses short-throw keys that have a distinctive action. As you type, your fingers feel a "click," which makes typing easier, faster, and less stressful over a long period. PC MacKey's layout matches that of the IBM PC; and, you get a numeric keypad and function keys that can be assigned macros by programs like Tempo. New version makes installation simple.





Fanny Mac

From Beck-Tech

$79

This dependable cooling fan not only reduces your Mac's operating temperature as much as 50°, the built-in surge suppressor keeps your data safe from destructive power spikes. It fits neatly into the handle of your Mac and pops out quickly for easy transport, and its "pass through" power assembly means you need only one power socket for both your Mac and Fanny Mac. Prolong the life of your Mac with Fanny Mac!

Western Computer
Big Mack Twinpack *SPECIAL* $1399
20 meg disk with tape backup

Accessories

Backup Tapes **$18-$28**
We now carry cartridges to fit most tape backup systems; call for details

Bernoulli Cartridges
- 5 Meg (3 Pack) $99
- 10 Meg (3 Pack) $189
- 20 Meg (3 Pack) $275
From Iomega
- 20 Meg (3 Pack) *NEW* $259
From Dysan

Beck-Tech
Fanny Mac $79
Surge suppressor built in

Cables/Adapters **$15-$40**
Make the right connection! We have a full line of quality cables; call for details

Cambridge Automation
Numeric Turbo $109

Computer Accessories
Power Director *NEW* $66
PowerLine One *SPECIAL* $9
PowerLine Six *NEW* $33
PowerLine Strip $39

Computer Friends
MacInker — includes ink $44
Re-inks ImageWriter cartridges only

Data Spec
DB9 Switch *NEW* $29
Works w/128 or 512K; requires Mac Serial DB9 cable.
Mini Din 8 Switch $39
Works w/Mac Plus; requires Mac Plus to fW II cable

Disk Holders/Storage
ACCO
Disk Holder (holds 80) $16

Eichner
Disk Holder (holds 60) $25
Disk Holder (holds 60) w/lock $33

Kalmar Inc.
RollTop Cabinet-45 *NEW* $23
RollTop Cabinet-90 *NEW* $39
RollTop Cabinet-135 *NEW* $49
Teakwood rolltop disk holders

MicroStore
disk•book-10 $11
disk•book-32 $22
disk•book-Plus $22
Traveller-4 *NEW* $5
Traveller-8 *NEW* $7
Traveller-12 *NEW* $9
Highest quality nylon disk carriers

Smith & Bellows
Mahogany Disk Case (holds 90) $28

Dust Covers **$7-$20**
We carry quality anti-static nylon covers for your Mac & all peripherals

Ergotron
MacTilt $75
Swivel stand for Mac and 2nd drive
MacTilt *for MegaScreen* *NEW* $80
MacTilt *for Radius Monitor* *NEW* $80

Hayden Publishing
Macintosh Advisor (book) $16

Honeywell/Disk Instruments
quadLYNX Trackball $99

Icon Review
Disk Pak (holds 10) $3
Head Cleaner $15
MacCracker $20
For qualified technicians only

I/O Designs
Printer Ribbons
- Black, 4-Pack $18
- Color, 4-Pack $19
Red, Yellow, Black, or Green
- One 4-Color (IWII) $12

Iomega
Cleaning Kit *for Bernoulli Boxes* $75

Kensington
AppleTalk Cable Clips $1
AppleTalk Connector Clip $1
Control Center *SPECIAL* $62
Mouse Pocket $8
Polarizing Filter *SPECIAL* $31
Surge Supressor $35
System Saver Mac *SPECIAL* $65
Quiet fan, surge suppressor & more!

Kraft
QuickStick *NEW* $42
Mac joystick

MacHelp Products
MacHELP Reference Cards $12
Cards perch on Mac or keyboard providing quick reference. Choose from Excel, Jazz, MacWrite/MacPaint, MultiPlan, Word. Be sure to specify program name & card style when ordering.

Mountain Equipment, Inc.
Mac or Mac Plus Carry Bag $89
ImageWriter I or II Carry Bag $69

Moustrak
MousPad—7"x9" $8
MousPad—9"x11" $9

Qualitas Trading Co.
Neos Mouse *NEW* $49
Better fit to hand, moves faster, smoother

R.H. Electronics
Mac 'N Frost Fan $65

ScanCoFurn
MacTable 42 *NEW* $339
Beautiful ergonomic work table

Tangent Technologies
PC MacKey $119
IBM-like keyboard with function keys

Diskettes

Sony DS/DD $25
Sony SS/DD $17

Icon Review is dedicated to supplying select Macintosh software, peripherals, and accessories at the lowest discount prices. Call toll free or order by mail.

Orders only
800/228-8910
In California
800/824-8175

CUSTOMER SERVICE 408/625-0465

MONDAY THRU FRIDAY 6 A.M. TO 8 P.M.
SATURDAYS 8 A.M. TO 4 P.M. (Pacific Time)

Order by mail:
P.O. Box 911, Dept. MW037
Monterey, CA 93942-911

OUR POLICIES

- We accept MasterCard and VISA with no added service charge. Private and company checks accepted; for faster delivery, send certified check, cashier's check, or money order.
- Sorry, we cannot accept C.O.D.'s.
- We accept corporate and school purchase orders for a minimum of $300 from qualified institutions. Mail purchase orders to Icon Review P.O. Box 911, Dept. MW037, Monterey, CA 93942-911.
- California residents add 6% sales tax.
- All goods are new and guaranteed by the manufacturer to work, but we cannot guarantee machine compatibility. Due to software copyright laws, all sales are final. Defective products will be replaced; call 408/625-0465 to request a Return Authorization Number.
- Shipping charges calculated by weight. For economy we ship UPS Ground ($5 min.); for faster service we recommend Federal Express Standard Air ($10 min.). Next day service is also available via Federal Express Priority One ($25 min.). SPECIAL SHIPPING: Canada, add 8% ($15 min.). FOREIGN ORDERS add 21% ($35 min.). All payments in U.S. dollars only.
- Foreign orders subject to FTC restrictions; call for details.
- Prices and availability subject to change.

Macintosh is a trademark licensed to Apple Computer, Inc. Icon Review is a division of MindWork Enterprises, Inc. MindWork and Icon Review are trademarks of MindWork Enterprises, Inc. • Icon Review, published by MindWork Enterprises, Inc. 6750 Mid Valley Center, Carmel, CA 93923
© 1987 MindWork Enterprises, Inc.

NATIONAL ACCOUNTS

Call today to find out how our National Accounts Program gives organizations like yours the benefit of **Icon Review's** unique brand of service and support. For more information, call 408/625-1957.

Circle 272 on reader service card

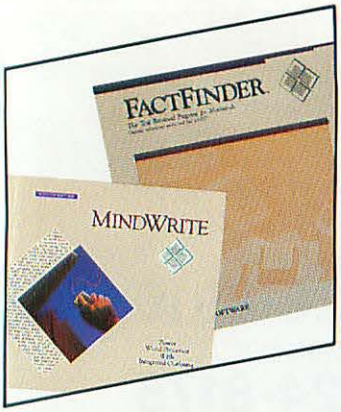
Winter Catalog features more than 300 Mac Products

Icon Review is dedicated to supplying select Macintosh software and peripherals, quick service, and discounted prices. To receive your *FREE* catalog and advance notice of special sales, mail this coupon today!

ICON REVIEW CATALOG
P.O. BOX 911 • Dept. MW037 • Monterey, CA 93942-911

Name _____
Company _____
City _____ State _____ Zip _____

Please allow 2-3 weeks for delivery



MindWrite/Fact-Finder Bundle

From Icon Review

$109

We've included two of our best-selling personal productivity tools in one specially priced bundle! MindWrite is a power word processor with integrated outlining that has too many truly innovative features and benefits to list here; FactFinder stores, organizes, and cross-references notes and information so they're always there when you need them. If you've been meaning to get organized, now's your chance!
MindWrite works w/512K, Mac Plus & Switcher; FactFinder works w/any Mac

Neos Mouse

From Qualitas Trading Co.

$49

A natural evolution in mouse technology, with a reverse-tapered shape that fits your hand without tiring your wrist. Teflon pads combine with slightly higher cursor ratio to give you a free-moving, smooth feel that lets you get around the screen faster. The buttons actuate true micro-switches (not a stamped-metal spring) to give you the tactile feedback of a distinct "click." You'll find that you work faster, more surely with the Neos Mouse.





Mirror 40/40

From Mirror Tech

$2695

The Mirror 40/40 SCSI Drive gives you 40 megs of hard-disk storage and 40 megs of tape backup. Sheer size makes this drive perfect for sharing among several users — even when their applications are huge. And backups are so easy that you can depend on your data being there when you need it. MacServe networking software (a $250 value) is included free. You chose the Mac for its potential, choose a Mirror 40/40 to realize that potential.
Requires Mac Plus; SCSI cable included

MacLightning 2.0

From Target

$53



Installed as a desk accessory, MacLightning checks spelling as you type (beeping when you misspell a word) or checks selected text or an entire document after it's entered. MacLightning uses an 80,000-word dictionary and boasts some new features: it now looks up words phonetically ("newmatic" will give you "pneumatic") and checks spelling from the Clipboard — great with PageMaker. No wonder it's our best-selling spelling checker!
Requires 512K & 2nd drive or Mac Plus

Legal Dict.	**$53**
Medical Dict.	**$53**
Thesaurus	**$29**

Libraries require MacLightning

5-Meg Bernoulli Box

From Iomega

$499

Now's your chance to purchase a Bernoulli Box with an original retail value of $1,495 at a one-time low price! This 5-meg serial drive boasts the same unlimited storage and unrivaled security of the larger drives and works with a 512K or Mac Plus. It's 3 to 5 times faster than a floppy drive, comes with a backup utility, and sets up in minutes. Supply is limited, so hurry!
Requires 512K or Mac Plus & 5-meg cartridge; cable included



Solutions
Glue $44
Adds "print to disk" capability to most Mac applications
State-of-the-Art
Electric Checkbook *SPECIAL* $29
SuperMac Software
Super LaserSpool *NEW* $31
SuperSpool *NEW* $79
Survivor Software
MacMoney *NEW* $40
Voted "Best New Personal Finance Program"
Symmetry
Acta $39
Desk accessory outliner
PictureBase $45
Target Software
MacLightning $53
• Legal Dictionary $53
• Medical Dictionary $53
• Thesaurus $29
Voila *Desk accessory outliner* $59
Think Technologies
LightspeedC $129
Lightspeed Pascal $89

True BASIC, Inc.
True Basic 1.2 $89
Algebra Utility $36
3D Graphics Library $36
Requires True Basic 1.2
True Stat Utility $36
T/Maker
ClickArt Business Image $29
ClickArt Effects $29
ClickArt Holidays $29
ClickArt LaserLetters *EACH* $47
• Bombay, Plymouth, or Seville
ClickArt Letters $29
ClickArt Letters/2 $29
ClickArt Personal Graphics $29
ClickArt Publications $29
WriteNow for the Mac $109
Fast word processor

Education/ Entertainment Software

Broderbund
Ancient Art of War $27
Knights, Archers, Cowboys, and more!
Davidson & Assoc
Math Blaster $29
Speed Reader II $49

First Byte
First Shapes $32
KidTalk $39
MathTalk $39
SmoothTalker $49
Speller Bee $39
Great Wave
KidsTime *SPECIAL* $29
Infinity
Grand Slam Tennis $27
Requires 512K or Mac Plus
Microsoft
Flight Simulator *SPECIAL* $32
Mindscape
Balance of Power $30
ComicWorks $49
Sophisticated graphics tool
Uninvited $32
Practical Computer Applications
MacGolf *SPECIAL* $36
Requires 512K or Mac Plus
QED Information Systems
Typing Made Easy $35
Improve your typing skills
Qware, Inc.
OrbQuest $27
Rubicon
Dinner at Eight $32
Silver Palate Collection $29
Requires Dinner at Eight
Silicon Beach
Dark Castle $29
World Builder $45
Create your own games
Spectrum HoloByte
Orbiter *SPECIAL* $27

Communications

CompuServe
Subscription Kit *SPECIAL* $25
Data Viz
MacLink Plus w/cable $159
File transfer IBM to Mac
Farralon
PhoneNet for 128/512K $39
Connects Mac 128/512, LaserWriter, or AppleTalk devices
PhoneNet for Mac Plus $39
Connects Mac Plus or ImageWriter to Network
Phone Net/AppleTalk Adapter $6

Hayes
Smartmodem 1200 *SPECIAL* $399
Smartmodem 2400 *SPECIAL* $629
Smartmodem Bundle $449
SmartCom II *SPECIAL* $89
Infosphere
MacServe (per server) $250
Hard disk partitioner, network disk server, print spooler & more!
Software Ventures
MicroPhone $CALL
Best communications software
Think Technologies
InBox Personal Connection $99
New non-dedicated version!
InBox Starter Kit $279
Non-dedicated version
USRobotics
Courier 1200 Modem $249
Courier 2400 Modem $499
Direct 1200 Modem *NEW* $119
Hayes compatible—Super value!

Hardware

Dove Computer Corp.
MacSnap 524 *NEW* $149
MacSnap Plus2 *NEW* $269
MacSnap Plus2H COMS *NEW* $669
MacSnap Plus4H CMOS *NEW* $1299
MacSnap SCSI Port *NEW* $67
Internal upgrades; require installation by an Apple dealer
Ergotron
MacBuffer 256K $259
MacBuffer 512K *SPECIAL* $365
MacBuffer 1024K (1MB) $569
Save time while printing on ImageWriter
MacBuffer LW/1 meg $CALL
MacBuffer LW/2 meg $CALL
Finally—Speed your LaserWriter printing!
Koala
MacVision $175
MacMemory, Inc.
MaxPlus *SPECIAL* $299
—Upgrade your Mac Plus memory to 2 meg. Plugs into standard SIMM sockets; includes MaxChill fan, MaxRAM/MaxPrint. ***Requires installation by technician.***
Micrographic Images
MegaScreen Plus *NEW* $2499
Requires Mac Plus

Summagraphics
MacTablet—6"x9" $329
MacTablet—12"x12" $449
Precision drawing and tracing
Thunderware
ThunderScan $189
T'Scan/Mac Plus Adapter *NEW* $49
Improved adapter for Mac Plus
T'Scan IW II Cable $18
Needed for use w/Mac Plus only

Disk Drives

AST
AST 2000 *SPECIAL* $1949
20 Meg Winchester; 20 meg tape backup
AST 4000 *SPECIAL* $4849
74 Meg Winchester; 60 meg tape backup
Ehman Engineering
800K External *SPECIAL* $179
20 Meg SCSI *NEW LOW PRICE* $699
Iomega
Bernoulli Box for Mac Plus
• 10 Meg SCSI Drive $1399
• 10+10 Dual SCSI Drive $1859
• 20 Meg SCSI Drive $1899
• 20+20 Dual SCSI Drive $2359
See Accessories section for required cartridges
SPECIAL PURCHASE!
• Bernoulli 5 Meg Serial Drive $499
Bernoulli technology at bargain price!
• Cheetah 20 Quick Drive $699
• Cheetah 45 Plus *SPECIAL* $999
Quality drives—super price!
Mirror Technologies
MagNet 20x—SCSI *SPECIAL* $849
MagNet 30x—SCSI $949
MagNet 30x w/ MacServe $995
Mirror 800K External Drive $229
Mirror 20 Tape Backup $929
Mirror 40/40 $2695
MagNet 85x *NEW* $4595
PCPC
MacBottom SCSI *SPECIAL* $869
Voted best peripheral of 1986
MacBottom Serial *SPECIAL* $869
ProAPP
20 Meg Drive $849
For any Mac; specify type when ordering
40S Drive $1699
Incredibly fast!

P.O. Box 911 • Dept. MW037
Monterey, CA 93942-911

In California
800/824-8175

New This Month!

Thunder From Batteries Included $33
Award-winning spelling and style checker.

MacMoney From Survivor Software $40
MacUser's best new personal accounting program for 1986.

MegaScreen From MicroGraphic Images $2499
A 19" diagonal monitor — great for page layout!

InBox From Think Technologies $99
New version no longer requires a dedicated Mac.

MacTilt for MegaScreen From Ergotron $80

MacTilt for Radius From Ergotron $80
Adjust your MegaScreen or Radius FPD to the most comfortable viewing angle.

BPI Entry Series From BPI Systems, Inc. $299
Powerful and versatile accounting for businesses.

CalendarMaker From CE Software $21
Create attractive personalized calendars easily.

DrawArt/Vol. II From Desktop Graphics $43
New volume of 300 easily customized images that include sports, people, objects, and business clip art.

Japanese Clip Art From Qualitas $79 each
Two "scrolls" of beautifully detailed drawings derived from Japanese themes.

Power Director From Computer Accessories $66
Quality 4-outlet, case-type surge suppressor.



Japanese Clip Art

From Qualitas Trading Co.

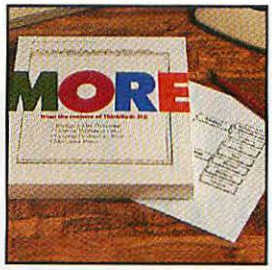
These two "scrolls" contain beautifully detailed drawings derived from Japanese themes, as well as 4 Japanese fonts each.

"Heaven" features demons, landscapes, masks, religious symbols, calligraphy, and mythical creatures — 174 images in 14 MacPaint files.

"Earth" contains samurai, flowers, landscapes, animals, temples, symbols and designs, and calligraphy — 193 images in 11 files. A unique addition to any clip art library.

Requires MacPaint or FullPaint

Heaven/Scroll 1 $79
Earth/Scroll 2 $79



MORE

From Living Videotext

$159

The first idea organizer/presenter for the Mac creates presentation graphics by automatically generating bullet or tree charts from outlines. Outlining tools and installable templates make managing ideas a snap, while multiple windows and easy export to other programs increase MORE's flexibility. Print charts on paper or as transparencies for instant overhead slides; create outlines; manage schedules. Do more with MORE.

Requires 512K or Mac Plus & external drive or hard disk

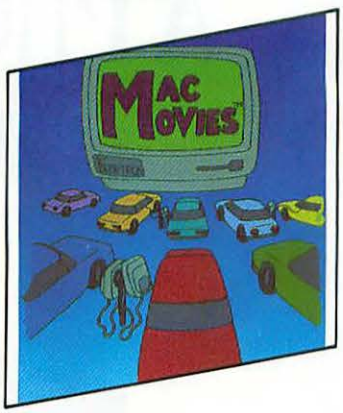
MacMovies

From Beck-Tech

$69

MacMovies is an easy-to-use graphics animation program that lets you make movies with your Mac. Create images in FullPaint, EZ-3D, ThunderScan, any MacPaint-compatible software, and MacMovies compiles them and plays them back — seamlessly — at speeds of up to 30 frames/sec. Sophisticated enough to satisfy professional animators and simple enough to entertain the would-be moviemaker in all of us. Now anyone can make movies!

Requires 512K or Mac Plus; 1 meg memory recommended but not essential



Software

Affinity Microsystems
Tempo — *SPECIAL* $59
Powerful macros with logic branching

ALP Systems
MacProof 2.0 — *SPECIAL* $99
Checks spelling, punctuation, and usage; 93,000-word dictionary

Altsys
FONTastic Font Editor — $27

Ann Arbor Softworks
FullPaint — *SPECIAL* $55

Batteries Included
Thunder — *NEW* $33
Award-winning spelling and style checker

Beck-Tech
MacMovies — *NEW* $69
Easy-to-use animator; requires 512K or Mac Plus

Blyth Software
Omnis 3 Plus — *SPECIAL* $289
Omnis 3 Plus Multi-User — $629
Powerful relational database

Borland
Reflex — *SPECIAL* $59
Interactive database w/many display formats
SideKick with PhoneLink — $59
Desk/phone/schedule organizer; dials too!
Turbo Pascal — $66

BPI Systems
BPI Entry Series — *NEW* $299
Complete double-entry accounting system for business

Broderbund
The Print Shop — $53
Make cards, banners & signs

Casady Company
Fluent Fonts — $29
Fluent Laser Fonts — *EACH* $49
Now 15 font selections to choose from

Central Point Software
Copy II Mac — $20
Includes hard disk install

CE Software
CalendarMaker — *NEW* $21
MacBillboard — *NEW* $24
Make signs, banners, billboards
MockPackage Plus — *NEW* $24
Includes MockTerminal, MockPrinter, MockChart & more

Cognitive Concepts
MacFill-In — *SPECIAL* $21
Preformatted business forms

Cortland
TopDesk — *SPECIAL* $35
Seven handy desk accessories

Cricket Software
Cricket Draw — $179
Powerful object-oriented drawing program w/text-editing; requires 512KE or Mac Plus
Cricket Graph — $129
The best!
StatWorks 1.3 — $79
Great value with best statistical graphs

Desktop Graphics
DrawArt/Vol. I — $29
DrawArt/Vol. II — *NEW* $43
Quality clipart in MacDraw format
DrawForms — $30
Requires MacDraw
MacForms — $42
Requires MacPaint

Dove Compter Corp.
RAM Snap — *NEW* $37

Electronic Publisher
MacMatbook/Vols. 1-3 — $69
MacMatbook/Vols. 4-6 — *NEW* $69
MacMatbook/Vols. 1-6 — *SPECIAL* $125
Indexed clip art; requires PictureBase

Enabling Technologies
Easy3D — $89
Pro3D — *SPECIAL* $249
Generates 3D PostScript graphics

Execucom
MindSight — $179
Business planning and decision analysis

Forethought
FileMaker Plus — *SPECIAL* $159
Award-winning data manager

FWB Software
Hard Disk Backup — $39
Hard Disk Partition — $39
Hard Disk Utility — $57

Greene, Johnson Inc.
Spellswell 1.3 — $55
New version does more

Ideaform
MacLabeler 2.2 — $29

Impulse
Studio Session — $69
Award-winning music program

Infosphere
LaserServe (per user) — $125

Innovative Data Design
MacDraft 1.2 — *SPECIAL* $165
Most powerful drafting tool for the Mac

I/O Designs
ColorChart — $32
ColorPrint — $25

Kent Marsh
MacSafe — $49
Sold in USA only

Layered
Notes... — *EACH* $42
For Excel, Jazz, PageMaker, or Works

Legisoft/Nolo
WillWriter — *SPECIAL* $27

Living Videotext
MORE — *SPECIAL* $159
Outlining with presentation graphics
ThinkTank 512 — *SPECIAL* $99

MacAmerica
LaserSpool — $79

MacMaster Systems
Fedit Plus 2.0 — $39
File recovery tool for the Mac Plus

MacMemory, Inc.
MaxRAM/MaxPrint — *SPECIAL* $33
Save time with RAM disk and print spooler

Manhattan Graphics
ReadySetGo 3 — *NEW* $169
Advanced page layout

Micro Analyst
Mac Zap — $39
Hacker's disk utility and more!

Micro Planning
Micro Planner Plus — $329
Enhanced version, requires 512K

Microsoft
Basic 3.0 — $69
Basic Compiler — *SPECIAL* $115
Chart — $75
Excel 1.03 — $225
File 1.04 — $112
Fortran — $169
Multiplan — $107
Word 3 — *NEW* $245
Works 1.0 — *SPECIAL* $179

Mindscape
GraphicWorks — *SPECIAL* $49

MindWork Software
FactFinder — $49
MindWrite — $89
Word processor for power writers!
MindWrite/FactFinder Bundle — *SPECIAL* $109

Monogram
Dollars and $ense — $81
Forecast — $41

Nevins Microsystems
TurboCharger 2.0 — $39
Speedy disk cache; requires 512K or Mac Plus

New Canaan
Mac Disk Catalog II — *SPECIAL* $32

Odesta
Double Helix — *SPECIAL* $279
Helix 2.0 — *SPECIAL* $99
MultiUser Helix — *NEW* $445
Powerful databases require 512K or Mac Plus

Orange Micro
Ragtime — $249
Page layout with spreadsheet, word processor, and more!

PBI
HFS Locator Plus — $27

PCPC
HFS Backup — $29

Personal Bibliographic
Professional Bibliographic System — *SPECIAL* $199
- BRS — $149
- Dialog — $149
- MEDLARS — $149

ProVUE
OverVUE 2.0 — $149
Fast, powerful, easy-to-use database
- Mail Manager Template — $29
- Personal Finance Template — $29

Qualitas Trading Co.
Japanese Clip Art — *NEW*
- Scroll 1/Heaven — $79
- Scroll 2/Earth — $79

Requires MacPaint or FullPaint

Satori Software
Bulk Mailer — *NEW* $99

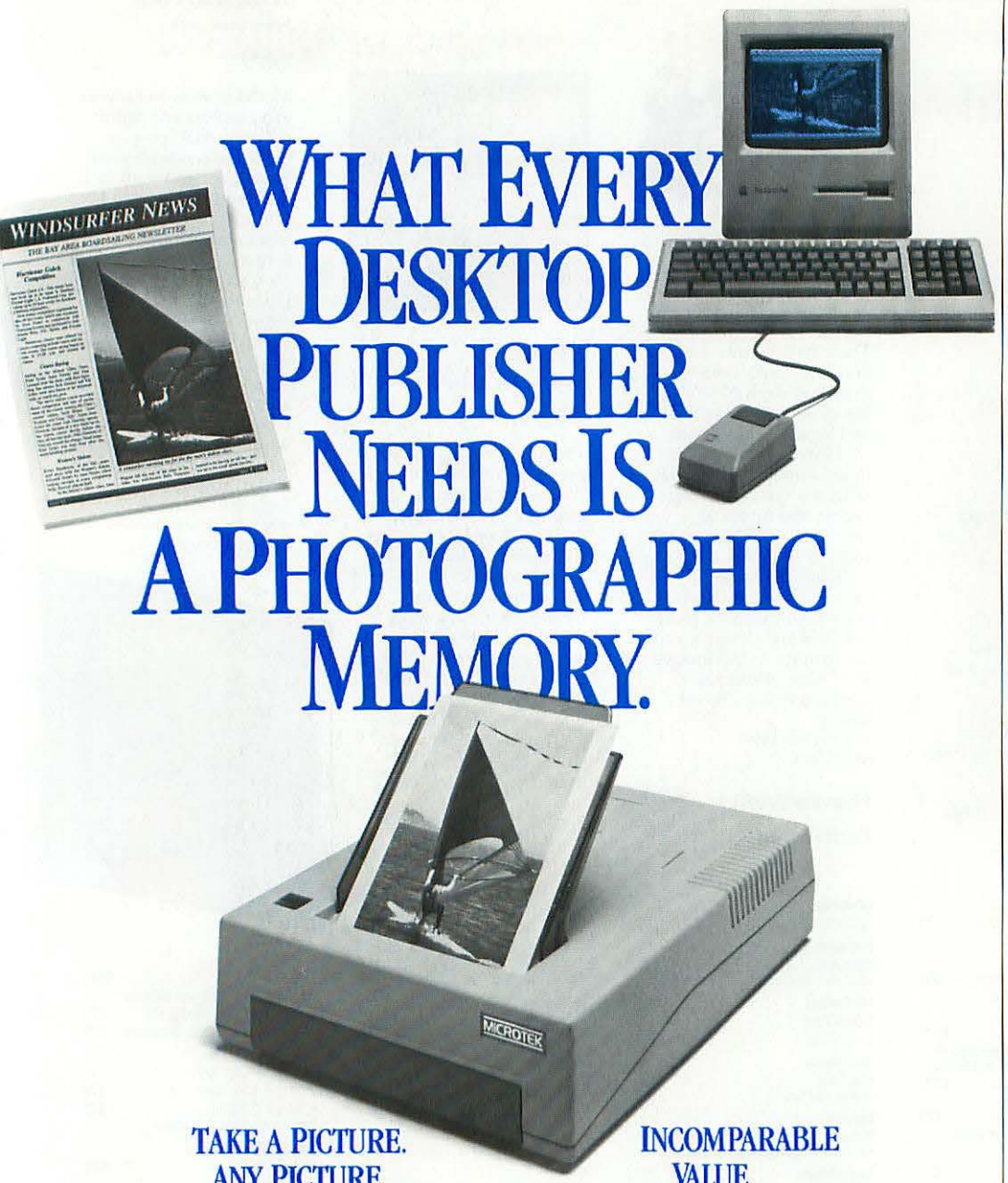
Silicon Beach
Silicon Press — $42
SuperPaint — *SPECIAL* $55
Bit map and object graphics

Softstyle
Colormate — *SPECIAL* $49
Colormate Art — $29
Printworks — $49

Softview, Inc.
MacInTax California — *NEW* $33
MacInTax Federal — *NEW* $74
Simplify your 1986 tax preparation

Software Discoveries, Inc.
Record Holder — $42
A full-function file/data manager

Orders only
800/228-8910



WHAT EVERY DESKTOP PUBLISHER NEEDS IS A PHOTOGRAPHIC MEMORY.

TAKE A PICTURE. ANY PICTURE.

It can be a photograph, artwork, a technical drawing. Feed it into the Microtek Intelligent Image Scanner, and it's on your computer screen almost instantly. Then you can edit, paint, and cut and paste it, and reproduce the sharpest image your laser printer can handle.

MACINTOSH OR IBM COMPATIBLE.

The Microtek Scanner can be used with either system. And naturally, it works with the most popular publishing software for both.

INCOMPARABLE VALUE.

For a scanner this sophisticated, you'd expect to make a heavy investment. But the Microtek Image Scanner is less than the cost of a laser printer and can pay for itself in no time.

It's simply the best way to improve your publishing image. For more information call 800-654-4160 (Inside California 213-321-2121).

MICROTEK

16901 S. Western Ave., Gardena, CA 90247.

Circle 585 on reader service card

user group's room and I couldn't tell where I was, except maybe from the accents. They all ask the same questions. And they all love the Mac."

Undoubtedly true. But the brief history of Macintosh user groups, or MUGs, is not without its lovers' quarrels, sometimes bitter ones. The intense user is part consumer (impossible-to-satisfy), part lover (semirequited). The fact that Apple itself was slow to support the groups—a tardiness it has remedied with the appointment of a user group evangelist and staff—did not help matters. Doubts about the Mac, and the vagaries inherent in volunteer-run organizations, have also caused ripples in the user community.

But after a bumpy start, the MUG world is thriving. That's good news for the Mac and for you. If you call 1-800/538-9696, extension 500, and find out the name of your local group, you can see for yourself.

The Big Apple Goes Macintosh

Lee Felsenstein, the computer designer responsible for the pioneering SOL microcomputer and the Osborne personal computers, once remarked that a successful computer is one that generates an active user group; by this standard the Mac was destined for success within weeks of its release. The spontaneous eruption of MUGs in 1984 was unprecedented. In New York, things began when two nonprofit fundraisers, Cheryl Sandler and Steve Doochin, bought a 128K Macintosh. Spurred by the vision that for yuppies like themselves the Mac was manna from silicon heaven, they put out a call to fellow nontechies who had discovered this wonder. Eighteen people met in a boardroom in May 1984. For the June meeting, the boardroom was quite crowded with 54 attendees. The third meeting was held in a large room at a local college: over 100 attended. By the fall, the meetings were being held in an auditorium seating 450, and even then there was standing room only. Almost 1000 members joined during that first year, and as Doochin describes it, "We were riding on the back of a tiger."

Similar explosions occurred in Berkeley, Chicago, Los Angeles, Boston, and other cities. The proliferation was due partly to the excitement people felt about owning Macintoshes—since their friends thought they were crazy for getting so worked up over a machine, Mac users

(continues)

With Maccessories®, you can always get what you want.

Kensington offers a wide variety of enhancement products for the Macintosh.

From the complete power organization, surge protection and cooling of System Saver® Mac to the simple convenience of AppleTalk™ Clips. From the smooth surface of the Mouseway to the comfortable relief of a Tilt/Swivel or Polarizing Filter. There's even a complete line of Cleaning Kits and Dust Covers to keep your Mac running smoothly.

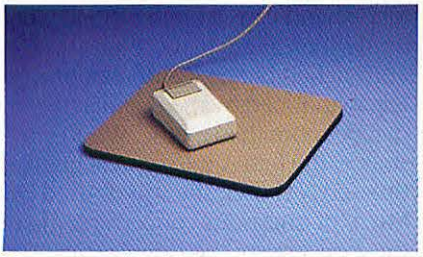
The newest member of the Kensington family is the Turbo Mouse. This new high-tech alternative to a standard mouse gives you twice the speed in half the space.



System Saver Mac, $99.95



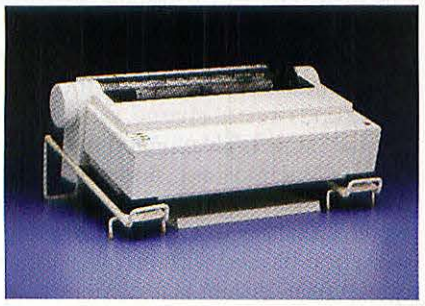
Tilt/Swivel, $34.95



Mouseway, $9.95



Circular Polarizing Filter, $49.95



Printer Stand, $19.95



Mouse Cleaning Kit with Pocket, $24.95



NEW! Turbo Mouse, $129.95

Use the time you'll save to brighten up your correspondence with our bit-mapped Type Fonts. Styled after popular type faces like Helvetica and Times, our

A

Headline Fonts are some of the largest available for the Mac!

Actual ImageWriter® Output

Text Fonts $49.95, Headline Fonts $69.95

For a Maccessories dealer near you, for a free 10 page brochure, or to speak to a Kensington sales representative, call toll-free (800) 535-4242. In NY (212) 475-5200.

KENSINGTON™

Trademarks: System Saver, Maccessories/Kensington Microware Ltd. Macintosh, AppleTalk, ImageWriter/Apple Computer Inc. © 1986 Kensington Microware Ltd.

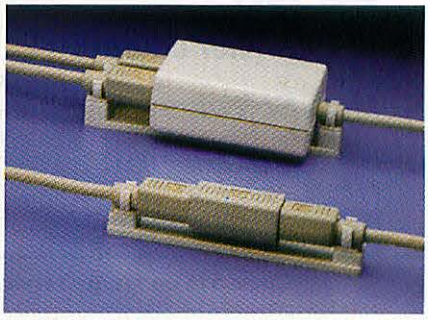
Circle 11 on reader service card



Copy Stand, $29.95



Mouse Pocket, $9.95



AppleTalk Clips, $25.00 for 25



Dust Covers, $9.95 to $13.75



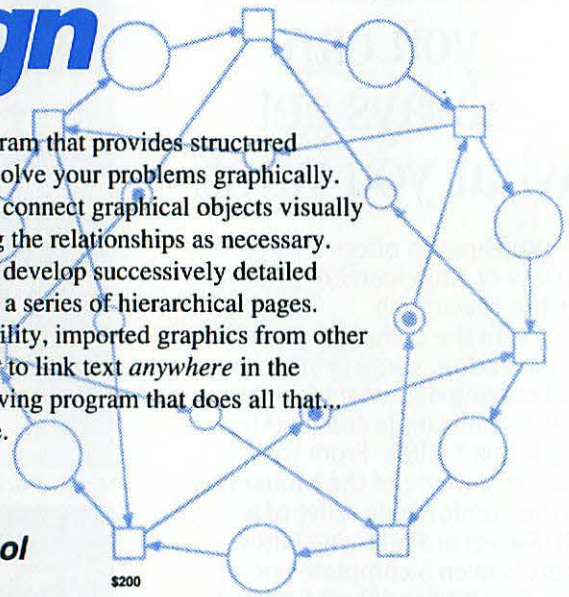
A-B Box, $99.95



Disk Drive Cleaning Kit, $29.95

Intelligent Graphics for Intelligent Solutions

design



Imagine a drawing program that provides structured techniques to help you solve your problems graphically. A program that lets you connect graphical objects visually *and logically*, redrawing the relationships as necessary. A program that lets you develop successively detailed descriptions by creating a series of hierarchical pages. Now add full text capability, imported graphics from other programs, and *hypertext* to link text *anywhere* in the diagram. Imagine a drawing program that does all that... Stop imagining, it's here.

design

The Thinker's Tool

$200

Meta Software
55 Wheeler Street
Cambridge MA 02138 USA
617.576.6920

design is expandable for simulators, analyzers, and OEM products. It is available for the Apple® Macintosh® 512K and Plus, and is HFS compatible.

®trademarks owned by, or licensed to, Apple Computer, Inc.

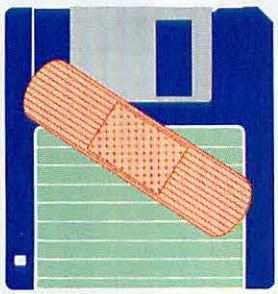
© 1986 Meta Software Corp.

Circle 596 on reader service card

1st Aid for Files

If a file is recoverable, you can save it!

Prevent disaster
You don't buy a fire extinguisher after the house has burned down. You need a **1st Aid Kit**™ before you get a serious error message.



Protect productivity
Don't redo hours of work because an important file or disk gets damaged. **1st Aid** puts an end to worries about data loss. Saving one critical file will more than pay for the cost of your **1st Aid Kit.**

Easy for beginners, powerful for experts
The easy to use Kit contains everything you need to save data from unreadable disks and deleted or damaged files. It includes:

+ File recovery software
+ Complete analysis and cross-referencing of Macintosh™ error messages
+ Step-by-step instructions
+ Tutorials with actual damaged files
+ Works on 128K, 512K, and MacXL Upgrades for Mac+ soon for a nominal charge

Introductory Special

Available Direct Order Only

4 Disk Kit $89.95

Plus shipping & handling. Mass. Residents add 5%

1-800-THE-FIXR
MA **617-847-4190**
VISA MC

Not Copy Protected
Macintosh is a trademark of Apple Computer, Inc. 1st Aid Kit is a trademark of 1st Aid Software, Inc.

1st Aid Software, Inc.
42 Radnor Road, Boston, Mass. 02135

Circle 579 on reader service card

sought out others who shared the same glorious affinity.

On the other hand, there was a matrix of need that bound the early Mac users. Charles Kadushin, a sociology professor at the City University of New York who has studied computer user groups, notes that "there is a curious similarity between having a disease and owning a computer.... For every existing disease, there is a self-help group that will, say, exchange information about prosthetic devices or arthritis aids. Computer user groups are their equivalent."

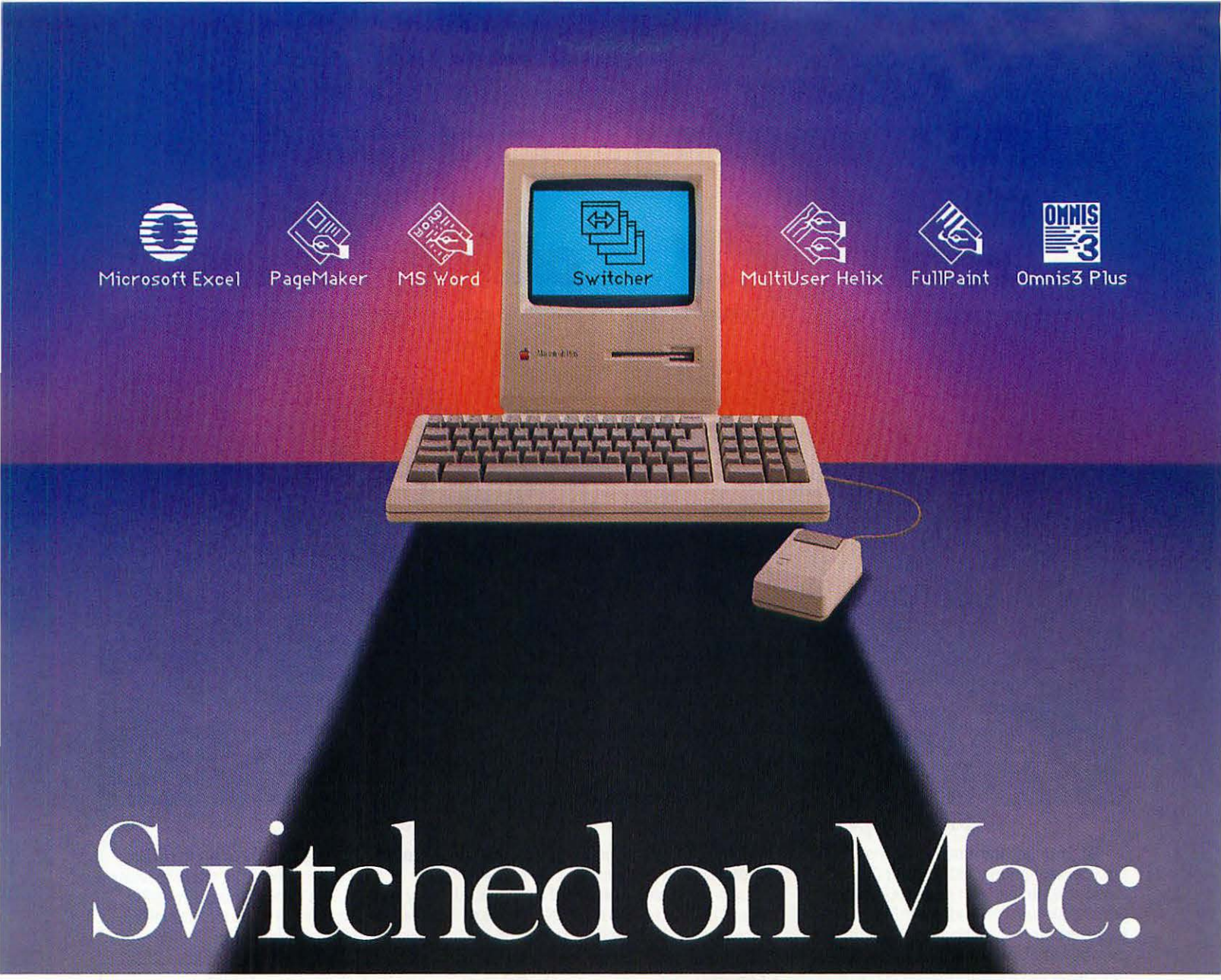
Handicapped by insufficient memory, a lack of storage devices, and an anemic software base, early Mac users had to rely on each other, and that need fueled the wildfire growth of user groups. Since the Mac's handicaps were temporary, and generally seen as such, there was little of the entrenched bitterness of user groups who felt abandoned by the manufacturer. Well, maybe more than a little. When, for instance, the first Apple representative addressed NYMUG, she was abused by a flurry of questions concerning the unfinished state of the original Mac. A sympathetic soul, noting her stunned response, called out, "Welcome to New York."

But generally, the meetings were lovefests. If you were a writer trying to produce a novel with a word processor that limited documents to nine pages, so what? You were part of a movement. And each month, you met new people who coped with the same problems. You heard rumors of software just around the corner that would solve all your problems. Computer consultants may charge exorbitant hourly rates, but for your measly $32 membership (the amount was chosen to conform to the 32 bits of the 68000 chip inside the Mac), you could find, free of charge, people who seemed amazingly plugged in to the secrets of Macintoshing, and who were more than eager to share their wisdom. Is it any wonder that NYMUG and other early MUGs were bombarded with membership requests from distant Mac owners, some from exotic lands?

Someone even noticed that money could be made in the user group business.

NYMUG copresidents Sandler and Doochin insisted that the group remain nonprofit and local. But around the coun-

(continues)



Switched on Mac:

SuperRam 2Mb and 4Mb RAM expansions give spreadsheets *room*, databases *speed*, and end the PageMaker shuffle.

Three telltale signs of a severe memory shortage:

1. Your spreadsheet runs out of room and dies.
2. Your database goes away for minutes at a time and talks to the disk.
3. Desktop publishing has you shuffling back and forth between your paint, word processing, and page makeup programs.

SuperRam™ helps you think big, think fast, think smart:
Expand to 2 or even 4 megabytes and end those "out of memory" messages.

Let your applications run in fast, big RAM, and watch your database sorts go by in seconds instead of minutes.

And load all your desktop publishing packages under Switcher and jump back and forth from page makeup to word processor to paint program to word processor to page makeup *instantly*. You won't know how you lived without SuperRam.

Don't start. Stop. Start. Stop. When you can go go go!
Upgrade your Mac Plus now. Or buy your new Mac with our 2Mb or 4Mb right off the bat.

Our 'double buffered' memory technology gives you a very important benefit: The 2Mb version allows for an easy upgrade to 4Mb. Only SuperMac™ gives you this important option. You don't think you'll ever need 4Mb? You probably never thought you'd need 2Mb! Keep your options open.

SuperRam is dealer-installed—in *minutes*. No need to wait for 1 meg RAM chips, either! We deliver *now*, using widely available, reliable, proven 256K chips.

A lifetime warranty.
It doesn't get any better than that.

Advanced surface mount construction, elegant design, and a noiseless, brushless fan combine to provide reliability that lets us back you as long as you own your system.

Wait no more. Call (415) 964-8884 for your nearest authorized dealer.
Our operators will *immediately* send you information on *all* the SuperMac products.

SuperMac Technology
950 North Rengstorff Avenue
Mountain View, CA 94043

SUPERMAC TECHNOLOGY

"Frankly, online computing costs were real ugly..."



$10.00+ per hour

Most online information networks can zap your computing budget faster than you can say "lightning." Not so with GEnie, the General Electric Network for Information Exchange. As part of the world's largest commercially available teleprocessing network of General Electric Information Services Company, GEnie lets you experiment with all of the fun and excitement that online computing has to offer.

Evenings, weekends, holidays. Just $5 per hour.

With GEnie, you can make friends, set up travel reservations, get the news, be entertained, even shop for a fraction of what other information services charge.

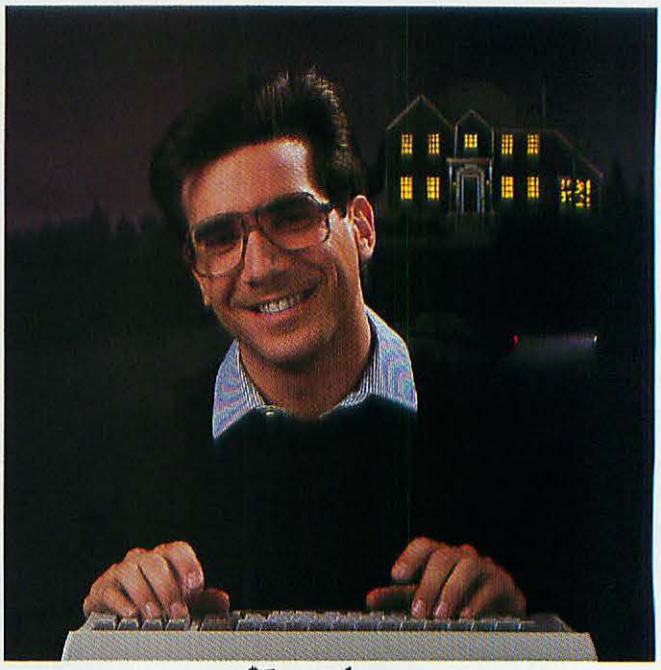
And you get a lot for your money.

With GEnie's Coffee MUG ***RoundTable™ Special Interest Group*** you can discuss the latest in Macintosh† products and accessories; download thousands of public domain software programs, and participate in exciting and informative online conferences. And, UPLOADS ARE FREE on GEnie!

There's more!

Meet friends old and new with GEnie's ***LiveWire™ CB Simulator*** or exchange messages with GEnie's ***electronic mail*** service. Schedule a trip with ***American Airlines travel service.*** Fun and learning for the whole family with ***Grolier's electronic encyclopedia.*** Play classic and ***multiplayer games.*** Track stock market quotes, check market indicators and maintain an automatically updated personal portfolio online with GEnie's ***Financial Services.*** All this and there's more to come. New services are being added each and every month!

"With GEnie™ I found friends online, for less."



$5 per hour

Only $18 to register! Save up to 60%!

Check out the chart. Compare the savings for yourself. You'll find GEnie delivers all of your favorite services for an incomparable price, at incomparable savings.

*Compare & Save**	Services						Pricing			
	Travel & Shopping	*SIGs/User Groups*	*CB & Mail*	*Financial Services*	*News*	*Games*	*Registration Fee*	*Monthly Minimum*	*Non-prime time rates*	
									300 baud	*1200 baud*
The Source	X	X	X	X	X	X	$49.95	$10.00	$8.40	$10.80
CompuServe	X	X	X	X	X	X	$39.95	none	$6.00	$12.50
GEnie†	**X**	**X**	**X**	**X**	**X**	**X**	**$18.00**	**none**	**$5.00**	**$5.00**

**Basic rates and services shown in effect 11/86. †Non-prime time applies Mon.–Fri., 6pm–8am local time, all day Sat., Sun., and nat'l holidays. Subject to service availability. Additional charges apply for 2400 baud and financial services.*

With services and savings like these, now you can discover the friendliness of online computing without the high costs that can turn you into a downright monster. Get a happy ending going with GEnie. Sign up today!

Sign up from your keyboard today.
4 Easy Steps:

1. Have your Visa, MasterCard or checking account number ready.
2. Set your modem for local echo (half duplex)—300 or 1200 baud.
3. Dial **1-800-638-8369.** When connected, enter HHH
4. At the U# = prompt enter **XJM11901,GEnie** then RETURN.

Need help or more information? No modem yet? We can help. In U.S. or Canada call **1-800-638-9636.**

†*Macintosh is a trademark licensed to Apple Computer, Inc.*

GEnie™

Stay online longer, for less.

INFORMATION SERVICES

General Electric Information Services Company, USA

GEnie rates and services subject to change. Uploads are free during non-prime hours at 300 or 1200 baud. Some services offered on GEnie may include additional charges. FRANKENSTEIN ™ ©1931, renewed 1959 Universal Pictures Company, Inc. All rights reserved. Licensed by Merchandising Corporation of America, Inc.

try, a few other user groups took the profit-making route. Most notable was the supernova Club Mac, a Denver-based group that solicited membership worldwide, offering member disks, a state-of-the-art newsletter, and a help hot line. By the end of 1984, Club Mac was 5000 members strong.

MUG Officer Burnout

If its astronomical growth had continued, of course, NYMUG would have had to look into renting Madison Square Garden for its meetings. But the New York group and other groups around the country hit the wall around autumn 1985. Many of the original Mac owners had found solutions to their specific problems, and with Mac sales flattening, there wasn't a huge group of new owners to take their place. With the failure of Apple's Mac Office promotion, some of the luster had worn off the Macintosh. And in the case of NYMUG, the details of organizing the group as a legal nonprofit entity, as well as handling the demands of the membership, had taken their toll on the volunteers in charge. Doochin and Sandler had married, moved out of the city, and were expecting a child. They turned over the reins to a new president, who was chosen, he explains, "because my 'no' was the least emphatic." During the new leader's first week, NYMUG's Mac and hard drive were stolen, closing down the group's BBS.

NYMUG's problems were not unique. Other big user groups had similar experiences. And though at least one national user group thrived—MAUG, which did all its business electronically on CompuServe—Club Mac did not, finally petering out in early 1986.

Ironically, it was at this standstill point that the parent company finally began to notice the valuable resource represented by MUGs. Apple Computer decided to set up a support system through which it could disseminate information to the groups and help them in other ways.

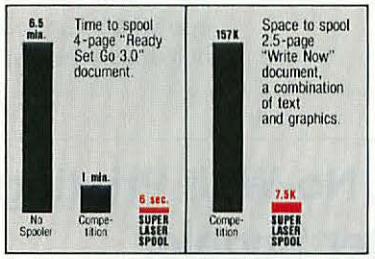
"While we had this little lull, we used it as a building time," says Ellen Leanse, who was chosen as Apple's first user group evangelist. "We built a communications system to user groups, set up a speaker's bureau, and began building a structure to integrate user activity into more areas of Apple."

(continues)



BLINDINGLY FAST. By sending your print files to the background and returning control of your Mac to you, SuperLaserSpool lets you work and print at the same time. And it does this *5 to 40 times faster* than its nearest competitor.

SuperLaserSpool gets you back to work fast. You never wait for the printer, no matter how many documents you have queued up or even if the network is busy. SuperLaserSpool automatically manages the entire printing process while you work.



Look how much faster SuperLaserSpool will give your Mac back compared to its competition.

SuperLaserSpool's files are so small, you don't have to worry about running out of disk space.

WORKS WITH ANY APPLE® PRINTER. SuperLaserSpool can print to the LaserWriter and ImageWriter™ (either direct-connect or AppleTalk™-connected).

INCREDIBLY COMPACT. Other spoolers require so much storage space that a hard disk is essential. Not so with SuperLaserSpool. You can use it with floppy-disk systems because its files are so compact.

DOWNLOADED FONTS. Unlike most of its competitors, SuperLaserSpool can handle files that have multiple downloaded fonts.

EASY TO USE. With SuperLaserSpool, you can view all the jobs in the print queue, change their priorities, delete jobs, receive on-screen help, and check on network activity. Your spool files are always safe, even if the system crashes.

SuperLaserSpool works with almost all Macintosh applications. You can even leave and enter different programs without disrupting the printing of documents.

And it's completely invisible: You can launch it and forget it's even there.

- **SINGLE-USER: $149.95**
- **MULTI-USER: $395.00**

Get SuperLaserSpool at your local SuperMac dealer today, or order direct.

SUPERMAC SOFTWARE

950 N. Rengstorff, Mountain View, CA 94043
(415) 964-8884

Macintosh is a trademark licensed to Apple Computer, Inc. by McIntosh Laboratory, Inc.
LaserWriter, ImageWriter and AppleTalk are trademarks of Apple Computer, Inc. © 1986 SuperMac Software.

This effort was officially launched in January 1986, as part of the AppleWorld Conference that introduced the Mac Plus. MUG representatives were honored guests, as they would be for all major product launchings thereafter. And though Leanse's group was not a be-all and end-all to MUGs hungry for support (the plan for discount sales of Apple equipment has been tortuously slow in execution), it allowed MUGs access to Apple for help previously withheld.

A good example of Apple's new approach is NYMUG's recent Macintosh Fair. It began when the group asked Guy Kawasaki to come to New York to speak. With Apple's encouragement, the event ballooned into a one-day computer show involving several user groups, over a dozen third-party developers, a list of speakers including three Apple evangelists and Scott *"Red Ryder"* Watson, and a raffle. The grand prize was a Mac Plus donated by Apple. When Kawasaki drew the winner's name out of the box, he looked at the ticket and read, "Steve Jobs." Just a joke.

Muggin' 'Cross the USA

Are Macintosh user groups different from other user groups? Ellen Leanse calls the members "cutting-edge-type people. Quite au courant with different types of products. They have a certain outspokenness."

The sociologist Kadushin hasn't compiled his data yet but ventures some observations based on the New York group. "They attracted a group of yuppies, which was unusual. The tone of the meetings is less grubby, less esoteric [than an IBM PC group]. An incredible number of stupid questions are tolerated, and there's a general desire to help people."

That's characteristic of the professionally oriented NYMUG, which is so tolerant of techno-naïfs that some hacker types have amicably split to form a bulletin-board-based user group of their own. My large stack of newletters from MUGs around the country shows a broader focus, but that aforementioned similarity of interests prevails. The offerings in these publications—mostly done in slick LaserWriter formats—show that almost all the groups are heavily into software disks (the San Diego MUG is up to Member Disk #137), free help lines (the Chicago-based The Rest of Us gives over twenty numbers to call for help on anything from spreadsheets to desktop publishing), rumor-mongering (often recirculating tidbits from other newsletters), and Andy Hertzfeld's *Servant*. The spunky former Apple programmer is the number one celebrity in these publications, from *Smug News* (Shenandoah, Virginia) to *Mad Mac News* (Madison, Wisconsin).

What comes through most of all is enthusiasm. Though these are not the giddy days of 1984, the excitement of the Mac and the power of the newest software offerings have maintained a thriving and active community. And I would venture that contrary to Dr. Kadushin's simile, the impetus comes from something more salutary than a common malady. Remember, certain sages initially guessed that once the Mac's bugs were worked out, its ease of use would obviate the need for the support of a user group. When I asked Ellen Leanse about that, she provided the following bit of evangelism: "When people are having fun, they like to share it." □

LaserSpeed™, No-Wait Printing LaserWriter Spooler

Print while you work
It's true. No wait laser printing is here. Now print and keep working. LaserSpeed, the Macintosh software spooler with built-in queue management. You decide what to print. And when.

If you print one page or encyclopedias—get LaserSpeed
Simultaneously layout pages in PageMaker. Crunch numbers in Excel. Type away in MacWrite or Word. Dip into fat bits with MacPaint. All while your laser printer zips out dazzling pages.

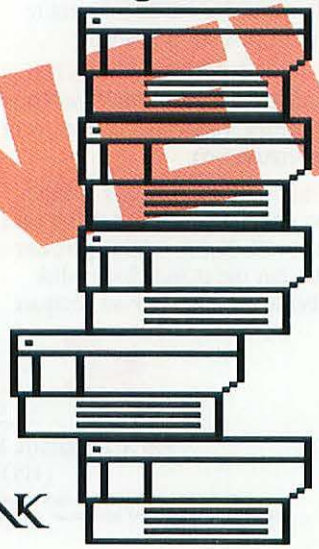
Here's how it works
LaserSpeed is always available. Just turn your Macintosh on. When you print, LaserSpeed holds your documents, leaving your machine free. Then it automatically waits in line for you. When it's your turn, LaserSpeed does the work not you.

You have total control
With LaserSpeed's desk accessory you can prioritize your important documents. Get instant "pop-up" notification when your printing starts or ends.

LaserSpeed, Apple, AppleTalk, LaserWriter, MacWrite, MacDraw and MacPaint, Excel, Word, and PageMaker are trademarks of THINK Technologies, Apple Computer, MicroSoft, and Aldus. Macintosh is a trademark of McIntosh Laboratory, Inc and is used with its express permission.

Also works with PageMaker

NEW



THINK

Crash proof
Turn spooling off or on. No one else on your AppleTalk network can interfere. Even if someone accidently turns off your Mac. LaserSpeed's "crash control" picks up right where it left off.

Why wait
LaserSpeed installs in a snap. Double-click once. That's it. It 's fast. It's powerful. Works with downloadable fonts. And it's available today. Join the thousands of others, who, like you, refuse to wait.

Get LaserSpeed for your own Mac for $99. Or LaserSpeed Office Pack for $499 to use on all Macs connected to a single designated LaserWriter. The LaserSpeed Office Pack includes five disk sets and manuals. Copy freely to all other Macs printing to the same designated LaserWriter.

THINK Technologies, 420 Bedford Street, Lexington, MA 02173, 617-863-5595

Call 617-863-5595 or mail to:
THINK Technologies, 420 Bedford Street, Lexington, MA 02173
Name _____
Address _____
City _____ State _____ Zip _____
Phone _____
___ Copies of LaserSpeed for my Mac, $99
___ Copies of the Office Pack, $499
Circle Credit Card Name: MC VISA AMEX
Card# _____
Expires _____
Signature _____

HOW TO BE ELOQUENT, WITTY, LOGICAL, FUNNY, PERSUASIVE FORCEFUL, AND EVEN VOCIFEROUS, BUT ALWAYS *EFFECTIVE.*

It's a presentation to the client, a financial report, a press release. The great American novel or a great company newsletter.

Your words are on the line. Give them the weight they deserve with one or more of the 45 classic type styles from the Adobe Type Library. They work on Apple LaserWriter™ and any POSTSCRIPT™ printer or typesetter.

You get multiple versions— regular, *italic*, **bold** and ***bold italic***— for ITC Garamond® Glypha® Optima® Palatino® ITC Benguiat® ITC Bookman® ITC American Typewriter® ITC Avant Garde Gothic® ITC Friz Quadrata. New Century Schoolbook. ITC Lubalin Graph® ITC Souvenir® **ITC MACHINE®** *ITC Zapf Chancery®* and ITC Zapf Dingbats®✍

Type styles are licensed from the world famous libraries of Mergenthaler and International Typeface Corporation. So you're working with type the experts prefer. The stuff of which today's most effective communication is made.

Turn your next business statement into a great success story. Talk to your Apple LaserWriter dealer about the Adobe Type Library today. Or call us directly at 800-29-ADOBE for more information.

P.S. Ask your LaserWriter dealer about POSTSCRIPT, Adobe System's internationally recognized page description language.

ADOBE SYSTEMS INCORPORATED

PostScript is a trademark of Adobe Systems, Inc. LaserWriter is a registered trademark of Apple Computer, Inc. Glypha, Optima and Palatino are all registered trademarks of Allied Corporation. ITC American Typewriter, ITC Avant Garde Gothic, ITC Benguiat, ITC Bookman, ITC Garamond, ITC Lubalin Graph, ITC Machine, ITC Souvenir, ITC Zapf Chancery and ITC Zapf Dingbats are all registered trademarks of International Typeface Corporation.

Circle 552 on reader service card

"Our goal was simple: capable writing tool mind saying, we've

Charles Simonyi, Chief Architect, Applications, Microsoft Corporation.

We weren't looking for incremental improvements. We were shooting for a quantum leap. Not a word processor but a *document* processor. A tool which would exceed every expectation and overwhelm every standard.

From now on, when people define what software should do for the production of documents, they'll point to this: Microsoft® Word version 3.0 for the Apple® Macintosh.™

On Word, everything you need to structure a document is integrated into the program. Starting up front with the outliner. Followed by style sheets which you can quickly set up to standardize and recall the formats you use repeatedly. Then a built-in spelling checker proofreads for you when you're finished.

Because speed is of the essence, we made Word a rocket. It scrolls faster, saves faster. And you can't out-type it.

Because there's a big, diverse world out there, Word easily shares and automatically converts files created with the IBM® PC version of Word. And supports DCA protocols for exchanging formatted files with minis, mainframes, and dedicated word processors.

Finally, what you see on screen will look superb on paper. Word will set text next to graphics. And exploit the capabilities of laser printers beyond anything that has gone before.

But the most powerful feature of all is its accessibility. Word lets you run its menus in either Short or Full mode. The first, a concise, basic menu which gets new users producing instantly. The second, a comprehensive menu which taps into Word's vast capacities.

That's Word for the Macintosh. Not just the best word processor on any micro-computer, but the most effective tool of persuasion ever devised.

Microsoft Word is available for the IBM PC and compatibles and the Apple Macintosh.

For the name of the nearest Microsoft dealer or to upgrade to version 3.0, call (800) 426-9400.
In Washington State and Alaska, (206) 882-8088. In Canada, call (416) 673-7638.

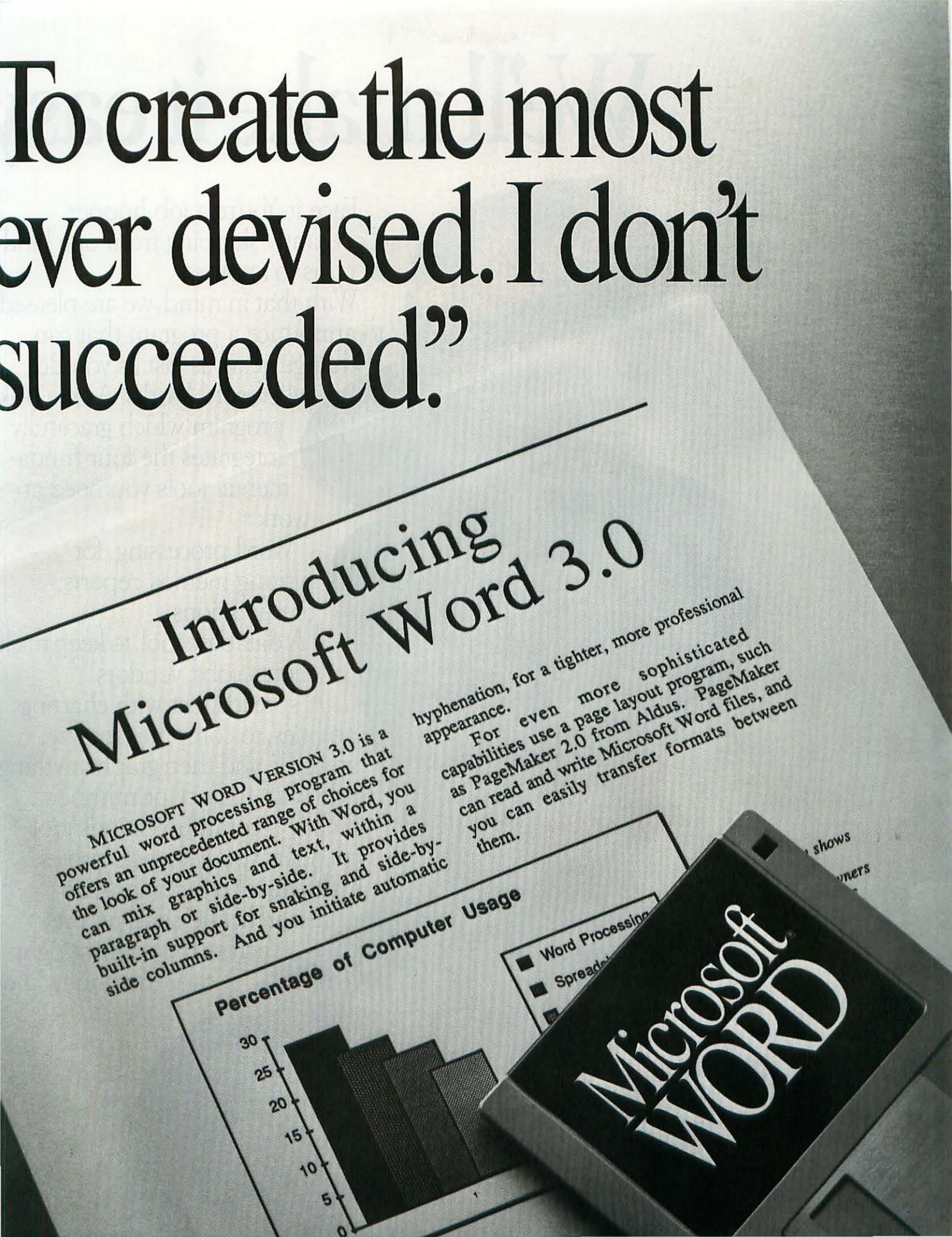
Microsoft is a registered trademark of Microsoft Corporation. Apple is a registered trademark and Macintosh is a trademark of Apple Computer, Inc. IBM is a registered trademark of International Business Machines Corporation.

To create the most ever devised. I don't succeeded."

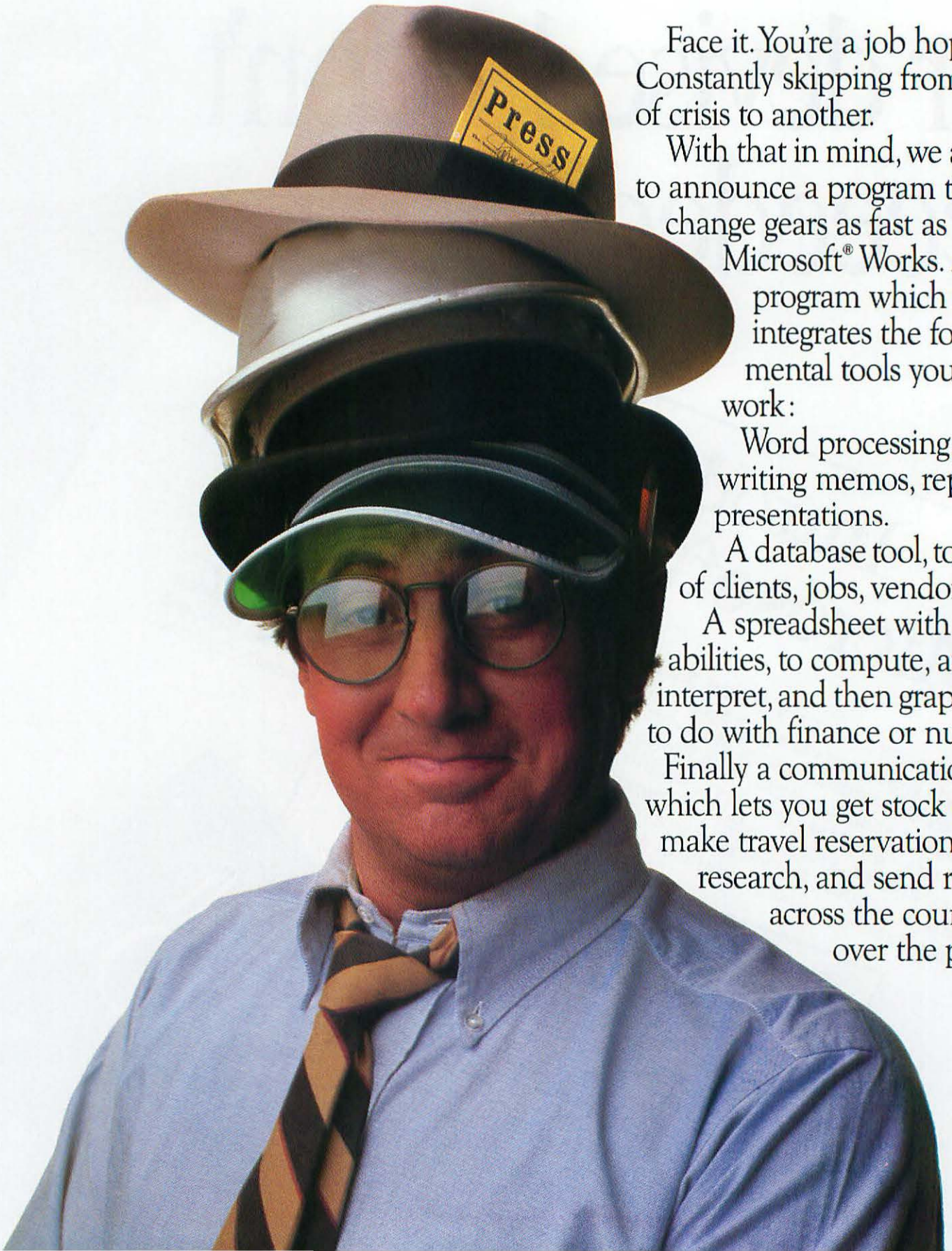
Introducing Microsoft Word 3.0

MICROSOFT WORD VERSION 3.0 is a powerful word processing program that offers an unprecedented range of choices for the look of your document. With Word, you can mix graphics and text, within a paragraph or side-by-side. It provides built-in support for snaking and side-by-side columns. And you initiate automatic hyphenation, for a tighter, more professional appearance.

For even more sophisticated capabilities use a page layout program, such as PageMaker 2.0 from Aldus. PageMaker can read and write Microsoft Word files, and you can easily transfer formats between them.



We'll make it easy



Face it. You're a job hopper. Constantly skipping from one kind of crisis to another.

With that in mind, we are pleased to announce a program that can change gears as fast as you do: Microsoft® Works. A one disk program which gracefully integrates the four fundamental tools you need at work:

Word processing, for writing memos, reports, presentations.

A database tool, to keep track of clients, jobs, vendors.

A spreadsheet with charting abilities, to compute, analyze, interpret, and then graph anything to do with finance or numbers.

Finally a communications tool which lets you get stock quotes, make travel reservations, do research, and send reports across the country, right over the phone lines

for you to change jobs.

Microsoft Works lets you juggle all these jobs, move swiftly and easily between them, while transferring and combining their information as you please. Because you do all these jobs with one, easy to learn, totally integrated program.

Quick study. Quick change.

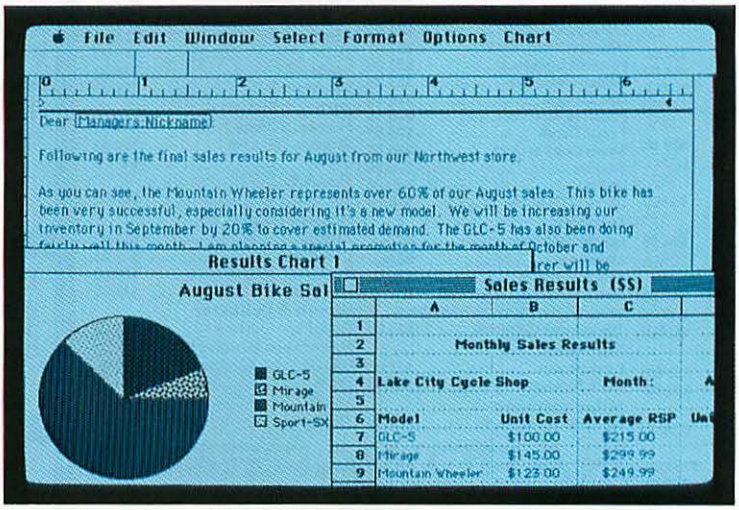
The first job is the easiest. Learning to use Microsoft Works.

It's a snap. The overall program and each tool within runs Macintosh™ style. Which, as you probably know, is a natural, common sense, point-at-what-you-want system.

And Microsoft Works is seamlessly melded together. You can have all four tools on screen at once. Jump instantly from one to another. And later combine work done in each part of the program on a single printed page.

This easy exchange of data makes jobs go faster and easier. One practical example being mass mailings of form letters where you need to combine names from the database with text written in the word processor.

All in all, Microsoft Works is a superb solution for day to day, get-it-done problems. An inspiring display of convenience, efficiency, and utility.



And, of course, it's a product of Microsoft, the preeminent developer of programs for the Macintosh. Which is not a claim, it's a fact.

If you're in a business that won't let you stick to one thing, check out Microsoft Works. The program that can change jobs as fast as you do.

Introducing Microsoft® Works

The High Performance Software

For the name of the nearest Microsoft dealer, call (800) 426-9400. In Washington State and Alaska, (206) 882-8088. In Canada, call (416) 673-7638.
Microsoft is a registered trademark of Microsoft Corporation. Macintosh is a trademark licensed to Apple Computer, Inc.

tcp MAC CLASSIFIEDS

ORDERS ONLY
CALL TOLL FREE 1-800-468-9044
INFORMATION AND
PA ORDERS 814-234-2236

SOFTWARE

BUSINESS & PRODUCTIVITY

Ann Arbor
Dull Paint $59.95
Arrays
Home Accounting $51.00
Batteries Included
Battery Pack $27.00
Thunder $29.00
Timelink $29.00
Homepak/Mac $29.00
Jigur Portfolio $119.00
Blyth Software
Omnis 3+ $289.00
BPI
General Accounting $219.00
Central Point
Copy II Mac $24.00
Chang Labs
Bags to Riches $259.00
Creighton
MacSpell+ $57.00
MacSpell+/Office Bundle ..... $CALL
Cricket
Cricket Graph $129.95
Statworks $79.95
Desktop Software
First Base $94.00
First Merge $47.00
First Port ..... $CALL
First Base,Merge,Port bundle $177.00
Digital Etc.
Maccountant 2.0 ..... $99.00
Turbo Maccountant ..... $CALL
Dubl-click
Calculator construction set $59.00
ESOFT
Color Print $24.95
Color Chart ..... $CALL
Forethought
Factfinder $47.00
Filemaker $89.00
Filemaker+ ..... $CALL
Kensington
Fonts $29.00
Fonts for Headlines $40.00
Layered
Front Desk ..... $CALL
Living Videotext
More $159.00
Thinktank 128 ..... $59.95
Thinktank 512 ..... $97.95
Manhatten Graphics
Ready Set Go V2.1 ..... $99.00
Ready Set Go V3 ..... $CALL
Microsoft
Excel $219.00
Multiplan $105.00
File $109.00
Word $109.00
Basic $87.00
Fortran ..... $CALL
Chart $72.00
Logo ..... $CALL
MacEnhancer $149.00
Mindscape
Graphic Works ..... $CALL
Monogram
Dollars & Sense $89.00
Forecast $40.00
Odesta
Double Helix ..... $CALL
Paladin
Crunch 512 ..... $99.00
Supercrunch ..... $CALL
Palantir
MacTalk ..... $CALL
Dactype $26.00
Mathflash $26.00
A/R,GL,Invt. Acct. modules .... $CALL
Peachtree
GL/AP/AR $83.95
Sartori
Bulk Mailing $77.00
Legal Billing ..... $CALL
Time Billing ..... $CALL

Sierra Information Systems
Accountants Choice ..... $CALL
Sierra-on-line
Mac One Write Acct. modules . $133.00
Silicon Beach Software
Silicon Press ..... $CALL
Accessory Pak 1 ..... $23.00
Super Paint ..... $CALL
Softstyle
Decision Map $79.00
Softsync
Personal Acct. $52.00
Software Ventures
Microphone $59.95
Springboard
Certificate Maker ..... $CALL
Telos
Filevision $104.00
T/Maker
ClickOn Worksheet $45.00
ClickArt Effects $27.95
ClickArt Publications $27.95
ClickArt Letters $27.95
ClickArt Pers.Graphics $27.95

GAMES & EDUCATIONAL

Accolade
Hardball $27.95
Avalon Hill
MacPro Football $29.95
Broderbund
The Toy Shop $39.95
Print Shop $49.95
Electronic Arts
Archon $26.95
Autoduel $33.95
Chessmaster 2000 ..... $29.95
D-Music Constr. Set 2.0 ..... $67.95
Financial Cookbook $33.95
Golden Oldies Vol. 1 ..... $23.95
One-On-One $26.95
Patton vs Rommel $26.95
Pinball Constr. $26.95
Seven Cities of Gold $26.95
Sky Fox $26.95
Ultima III $39.95
Ultima III Cluebook ..... $ 9.95
Infocom
Leather Goddess ..... $CALL
Moon Mist ..... $CALL
Zork II or Zork III $26.00
Zork I, Seastalker, Enchanter, Hitch-hikers Guide, Planetfall, Wishbringer, The Witness,Cutthroats $23.00
Microsoft
Entrepreneur $31.00
Flight Simulator $32.95
Miles Software
Harrier Strike Mission $29.00
Macatack $29.00
Overloads ..... $CALL
Fusillade ..... $CALL
Macwars ..... $CALL
Mindscape
Balance of Power $30.00
Deja Vu $29.00
King of Chicago ..... $CALL
Racter $26.00
Rambo $24.00
SAT $45.00
The Mist $24.00
View to Kill $24.00
PBI
Feathers & Space $21.00
Strategic Conquest $29.00
Fokker $35.00
P.C.A.I.
Mac Golf ..... $CALL
Silicon Beach
Airborne $19.95
Dark Castle $29.95
Enchanted Sceptre $22.00
World Builder $47.95
Simon & Schuster
Great Paper Airplane Kit ..... $CALL
Spectrum Holobyte
GATO $28.00
Orbiter $34.95
Tellstar L1 ..... $28.00
Tellstar L2 ..... $44.95

HARDWARE

Assimilation
MacPort Adapter $75.00
MacTurbo Touch $77.00
Numeric Turbo $129.00
Beck-Tech
Fanny Mac $79.95
Microsoft
Printer Enhancer $149.00

MODEMS
Prometheus
Promodem 1200m $327.00
(includes software)
Prentice
Popcorn X-100 ..... $251.00

PRINTERS
EPSON
All models in stock
CALL FOR LOWEST PRICES !!!
PANASONIC
1091 ..... $229.00
1092 ..... $329.00
1592 ..... $CALL
STAR
A NEW STAR IS BORN NX-10
$CALL FOR PRICE AND AVAILABILITY
Star to Mac Interface $323.95
SG-10, SD-15, SR-10, SR-15 $364.00
SD-10 ..... $CALL
SG-15 ..... $CALL

ACCESSORIES

Blohard
MACFAN $99.95
I/O Design
MAC+ Bag $69.95
Imagewriter Bag $49.95
Imagewriter II Bag $54.95
Innovative Concepts
Flip-n-File Micro (holds 25) $7.95
Flip-n-File (holds 40) $15.95
Innovative Technologies
Easel (holds 20 disks) $14.00
Disk Directory (holds 32) $19.95
Pocket Pack $9.95
Library $29.95
Compubag for Mac 512, 128 .. $54.00
(has enough space for hard drive)
Compubag for Mac+ ..... $CALL
Mousepad $5.95

Kensington
Swivel $20.00
Filter $29.00
Control Center $59.00
A-B Box $59.00
Surge Supressor $32.00
Maccessories starter pak $53.00
Mouse cleaning kit & pocket ... $16.00
N2 Cables $call for price & configuration

3 1/2" DISKS BOXED IN 10s

# OF BOXES		1-4	5-9	10+
SONY	SS/DD	13.95	13.45	12.95
	DS/DD	19.95	19.45	18.95
MAXELL	SS/DD	13.45	12.95	12.45
	DS/DD	19.95	19.45	18.95
FUJI	SS/DD	13.45	12.95	12.95
	DS/DD	18.45	17.95	17.45
VERBATIM	SS/DD	14.45	13.95	13.45
	DS/DD	19.95	19.45	18.95

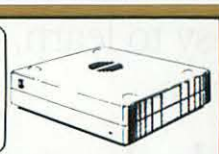
Regular Hours
East Coast Time
M-F 9am-8pm
Sat 10am-6pm
NEW HOURS/MAR 01
M-Thurs 9am-9pm
Fri 9am-6pm
Sat 10am-6pm

Software orders over $50.00 will be shipped FEDERAL EXPRESS (yes, even with *these* prices)
You only pay TCP's standard shipping charge of $4.00 per order. This offer also valid on peripherals and accessories under 8 pounds. Orders arriving before 11:00 AM our time will be shipped out same day.*
FEDERAL EXPRESS

DRIVE A HARD BARGAIN!

Get the Lowest Price Around on MAC HD's from TCP!
ALL HARD DRIVES SHIPPED FEDERAL EXPRESS FOR $4.00

MAC BOTTOM



PCPC MACBOTTOM 20
HARD DRIVE $879.00
SCSI Version Available $869.99

HERE'S THE LoDOWN ...
20 Meg HD $725
50 Meg HD ..... $CALL
50 Meg Tape Bkup .. $979
Tape 20 and 20/20 .. $CALL

MIRROR TECHNOLOGIES Inc.
Magnet 20X $759.00
Magnum 800K $209.00
Magnet 40/40 ..... $2295.00
Call for our low price on the following Mirror Tech products
■ Magnet 30x ■ Magnet 85x or 172x ■ Magnum Tape Backups ■ Fast Port Option

Other Brands of HD's In Stock
If a product you want is not advertised, please call - it might be in stock

EDUCATIONAL and CORPORATE ACCOUNTS:
We offer a full line of services catering to you. Including; quick turn-around, personal service, and the flexibility to serve your organizations needs. Credit Approval in 24 hrs for any organization with a good D&B rating.
To reach our Educational and Corporate Sales Department directly, Call 1-800-533-1131. Inside PA Call 814-234-2236

MICROSOFT®
The High Performance Software™
EXCEL $219.00
FILE $109.00
WORD V3.0 ..... $CALL
WORKS ..... $CALL

Target Software
MacLightning $52.00 Medical
Thesaurus ..... $32.00 or Legal
Voila ..... $CALL Dictionary $67.00

cricket software
GRAPH $129.95
STATWORKS $87.95
CRICKET DRAW $CALL

Tempo FROM AFFINITY $57.00

Ashton-Tate
Dbase Mac ..... $CALL

BLYTH SOFTWARE
OMNIS 3+ $279.00
Executive Asst ..... $CALL

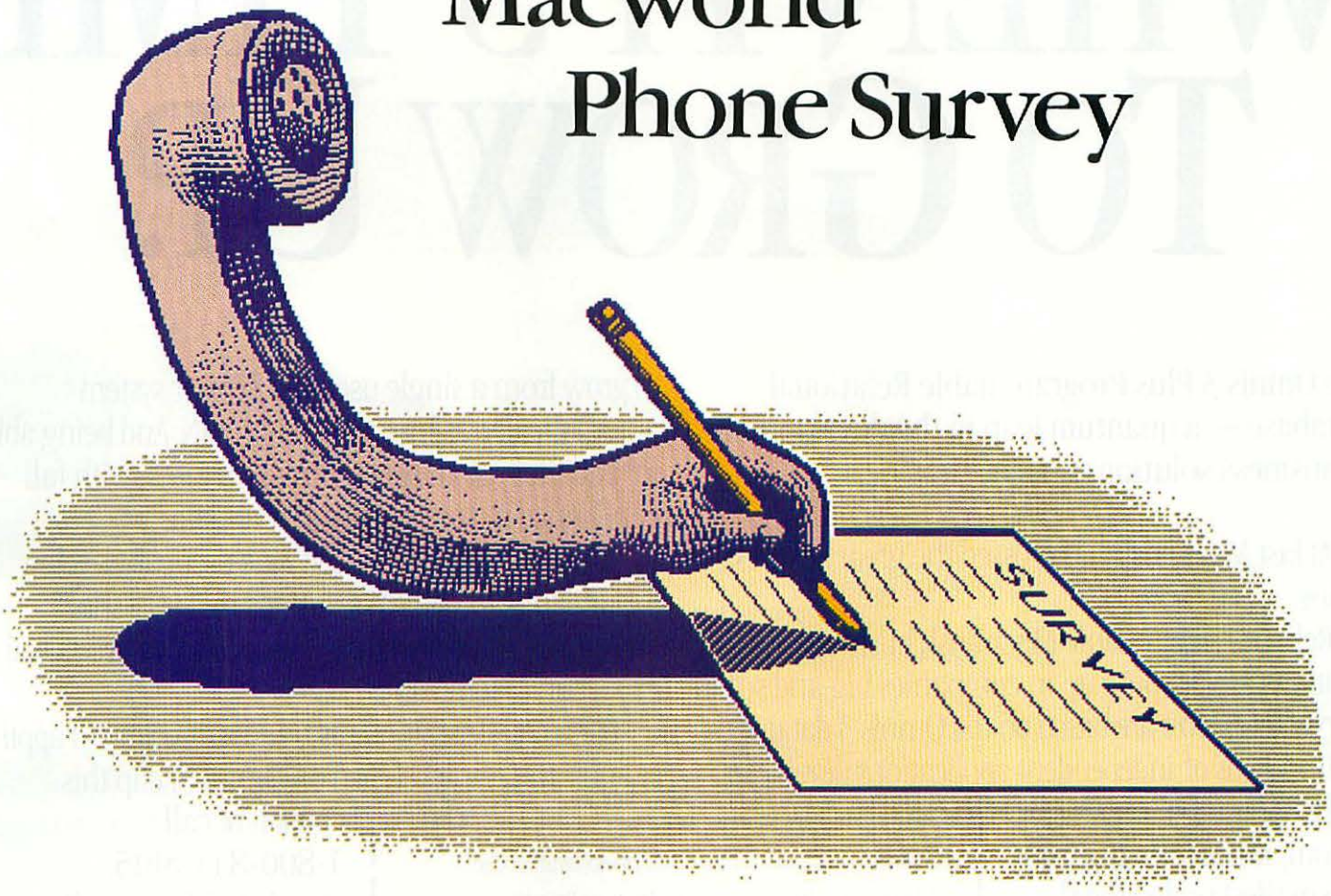
BORLAND
Reflex/Mac $59.00
Turbo Pascal/Mac ..... $CALL
Sidekick w/phone link $54.00

- If through some oversight we don't have the lowest price, we would appreciate the opportunity to beat it. If we can, you will get the benefit of our Federal Express shipping on software orders over $50.00.
- We accept Mastercard, Visa, COD and mail orders
- Purchase orders are accepted from qualified corporations and institutions. Minimum order of $500.00 required.
- No sales tax on orders outside of PA.
- Buy with confidence. We honor manufacturers warranty.

To order by mail: We accept money order, certified check, personal check. Allow 2 weeks for personal check to clear.
Shipping: $4.00 for software and accessories/ $10.00 for printers and color monitors/ $8.00 for disk drives and other monitors/ Add $3.00 per box shipped COD. Call for other shipping charges. Additional shipping required on APO, FPO, AK, HI, and foreign orders.
Terms: ALL PRICES REFLECT CASH DISCOUNT, ADD 1.9% FOR MASTERCARD OR VISA. Manufacturer's warranty honored with copy of our invoice. **ALL SALES ARE FINAL.** Defective items replaced or repaired at our discretion. Pennsylvania residents add 6% sales tax. Prices and terms subject to change without notice.

tcp **TUSSEY COMPUTER PRODUCTS**
P.O. BOX 1006
STATE COLLEGE, PA 16804
Circle 483 on reader service ca

Macworld Phone Survey



MICK WIGGINS

We'd like to have your thoughts about *Macworld* and the Mac. What do you like? What don't you like? Which subjects intrigue you most? Any problems with the technology? With support?

Call us! Through February 14, 1987, your phone responses will be recorded, and in a future issue we'll let you know the results of this survey.

First, read the questions and decide on your answers. Then follow these directions.

Step-by-Step Example

Dial the phone number 800/345-3550.

A computer will answer: "Please enter control number."

If you're using a push-button phone, enter the control number at the top of the answer section, then press the star (*).

Computer: "Enter Part I."

Look at your answer form and punch in your answer to Part I, then press the star.

Computer: "Enter Part II."

Repeat the procedure in Part I for Parts II through VII. Don't forget the star at the end of each part.

For processing purposes, wait for the computer to thank you, then hang up.

In case of error, press # and 1 and begin again, or press # and 0 for assistance.

If you're using a rotary-dial phone: Dial the phone number. Wait for the computer to ask for the control number twice; an operator will then come on the line to assist you.

(continues)

Answer Section

Telephone number: 800/345-3550

Control Number: 2 6 0 9 1 0 1 *

Part I [ ] *
A

Part II [ ][ ][ ][ ][ ][ ][ ][ ][ ][ ] *
B

Part III [ ][ ] *
C D

Part IV [ ][ ][ ][ ][ ][ ][ ][ ][ ][ ] *
E

Part V [ ][ ][ ][ ][ ][ ] *
F

Part VI [ ][ ][ ] *
G H I

Part VII [ ][ ][ ][ ][ ][ ][ ] *
J

WHEN IT'S TIME TO GROW UP.

The Omnis 3 Plus Programmable Relational Database — a quantum leap in the development of business solutions on Macintosh.

At last Macintosh has crossed the great business divide.

Reliable, expandable Macintosh business solutions are popping up in companies big and small, everywhere. Most are based on the Omnis 3 database.

Hundreds of independent applications developers, and thousands of managers in companies, ranging from the smallest professional practices to the largest multinationals (like American Express, Citicorp, and Arthur Young), have lifted sales of Omnis 3 far beyond its closest competitor.*

Why? Because Omnis is the most powerful tool available for developing textual/numeric, transaction intensive applications on a personal computer.

What exactly does "most powerful" mean? It means finding one of 100,000 records in an unbeatable .17 seconds. It means being able to grow from a single user to a 32 user system automatically, using any popular LAN. And being able to read files off all best selling programs, with full confidence in the security of your data.

It means an experienced Mac user can develop expandable, long term solutions in a very short amount of time. And they'll be as easy to use as you'd expect on Macintosh.

For a demonstration disc, and a directory of applications already developed on Omnis 3, clip this coupon or call 1-800-843-8615. (Inside California call 1-800-223-8050).

☐ Please send me an Omnis 3 Plus Demonstration disc

☐ I would also like an Omnis Applications Directory

Enclose a $25 check for the demonstration disc (California residents add $1.60 sales tax), and $5.00 for the directory.

If you wish to charge the above amount to your VISA or MasterCard, see below.

Name_____

Title_____

Company_____

Address_____

City_____ State_____ Zip_____

Phone (_____)_____

☐ VISA ☐ MasterCard

Charge Account # _____

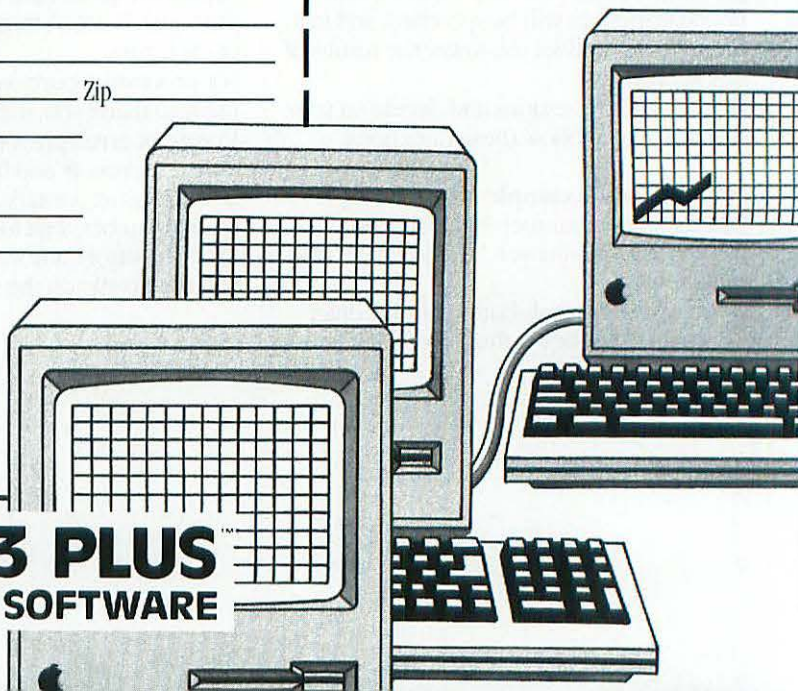
Signature_____

Expiration Date_____

Send to Blyth Software Inc., 2929 Campus Drive, Suite 425, San Mateo, CA 94403.

*According to a study by Dataquest published in Infoworld 8/86, Omnis 3 outsells all other Macintosh databases combined.

Omnis and Macintosh are registered trademarks of Blyth Software Ltd. and Apple Computer Corp. respectively.



OMNIS 3 PLUS™
FROM BLYTH SOFTWARE

Circle 588 on reader service card



I don't want to spend 30 hours learning **WORD**

Then get **LEARN WORD**

What's that?

Self-paced courses on Word that you can complete in about an hour

How do they work?

Instructors on the **LEARN WORD** audio tape guide you through the lessons while you use Word with the **LEARN WORD** practice disk.

You mean I can be using Word in an hour

Sure can!

Without reading the manual?

Yes–Just call
408-559-8635
for more information



Available Courses:

Learn Word Series
1 Beginner
2 Intermediate
3 Advanced

Excellerate Series
1 Fundamentals of Excel
2 Creating Business Graphs
3 Adding power to your Spreadsheet
4 Building & Using Databases
5 Building & Using Macros
6 Linking and Consolidating Spreadsheets

Personal Training Systems

Dealer Inquiries Welcome

Word is a trademark of Microsoft Corporation. Learn Word is a trademark of Personal Training Systems.

Circle 560 on reader service card

Macworld Phone Survey

Part I

A. What type of product information would you find most valuable in *Macworld?* (Enter one response)

Product announcements	*Enter 1*
Single-product evaluations	*Enter 2*
Product comparisons	*Enter 3*
How-to-use articles	*Enter 4*
Other	*Enter 5*

Part II

B. Which application areas would you like to read about in *Macworld?* (Enter all that apply)

Business	*Enter 1*
Desktop publishing	*Enter 2*
Education	*Enter 3*
Engineering	*Enter 4*
Games	*Enter 5*
Graphics	*Enter 6*
Music	*Enter 7*
Programming	*Enter 8*
Other	*Enter 9*
Don't know	*Enter 0*

Part III

C. What do you primarily read *Macworld* reviews for? (Enter one response)

New ways to use the Macintosh	*Enter 1*
Product news	*Enter 2*
Purchase information	*Enter 3*
Other	*Enter 4*
Don't know	*Enter 5*

D. Based on your experience, what is the most common problem with Macintosh software? (Enter one response)

Compatibility	*Enter 1*
Copy protection	*Enter 2*
Documentation	*Enter 3*
Purchase price	*Enter 4*
Support	*Enter 5*
Other	*Enter 6*
No problem	*Enter 7*
Don't know	*Enter 8*

Part IV

E. In which areas do you think Macintosh software is needed? (Enter all that apply)

Architecture	*Enter 1*
Business	*Enter 2*
Children's programs	*Enter 3*
Education	*Enter 4*
Engineering/construction	*Enter 5*
Law	*Enter 6*
Medicine	*Enter 7*
Other	*Enter 8*
No additional areas needed	*Enter 9*
No opinion	*Enter 0*

Part V

F. From what sources do you obtain Macintosh software? (Enter all that apply)

Retail outlets	*Enter 1*
Mail-order companies	*Enter 2*
On-line bulletin boards or public domain	*Enter 3*
Unauthorized copies	*Enter 4*
Other	*Enter 5*
Do not obtain	*Enter 6*

Part VI

G. What do you consider to be the most serious limitation of the Macintosh? (Enter one response)

Closed architecture	*Enter 1*
Internal memory	*Enter 2*
Lack of color monitor	*Enter 3*
Lack of software	*Enter 4*
Speed	*Enter 5*
Other	*Enter 6*
No serious limitations	*Enter 7*
Don't know	*Enter 8*

H. Which hardware product has given you the most problems? (Enter one response)

The Macintosh	*Enter 1*
External 800K drive	*Enter 2*
Internal hard disk drive	*Enter 3*
External hard disk drive	*Enter 4*
Memory upgrades	*Enter 5*
LaserWriter	*Enter 6*
Other printer	*Enter 7*
Network hardware	*Enter 8*
Other	*Enter 9*
No problems	*Enter 0*

I. Overall, how would you rate the quality of support from Apple dealers? (Enter one response)

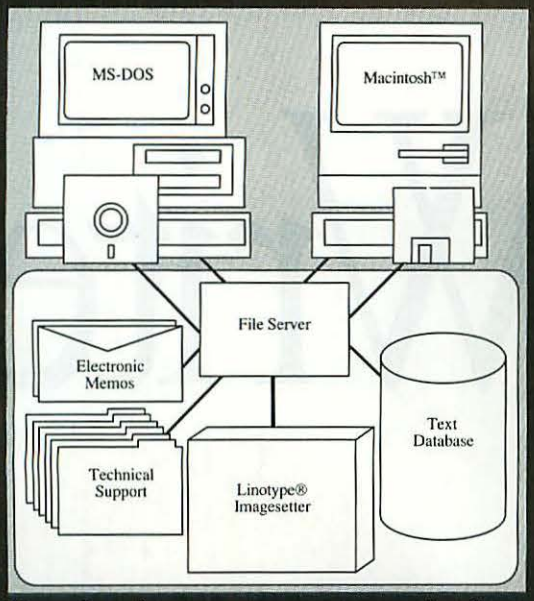
Excellent	*Enter 1*
Good	*Enter 2*
Fair	*Enter 3*
Poor	*Enter 4*
No experience with dealers	*Enter 5*

Part VII

J. Where have you ever had a problem getting support? (Enter all that apply)

Dealers	*Enter 1*
Developers	*Enter 2*
Service contractors	*Enter 3*
Manufacturers	*Enter 4*
In-house	*Enter 5*
Other	*Enter 6*
No support problems	*Enter 7*

We appreciate your input. Remember, we need it by February 14, 1987. □



OFFICETALK

Introducing OfficeTalk™.

The communications and publishing program you don't have to be a rocket scientist to understand.

Now there's a computer system that lets even non-technical types get off the ground fast.

It's new OfficeTalk. And it makes desktop communications and publishing very, very simple to learn.

So simple that even persons without pointed heads can be up and running in just one hour.

They can practice serious desktop publishing, right down to setting type on our laser printer or Allied Linotype™ typesetter.

They can use electronic mail to send 400 memos worldwide, simultaneously.

They can review paperless letters.

They can have important documents printed and returned in less than 24 hours.

And when they need a hand, help screens from companies like Aldus and Microsoft are available 24 hours a day.

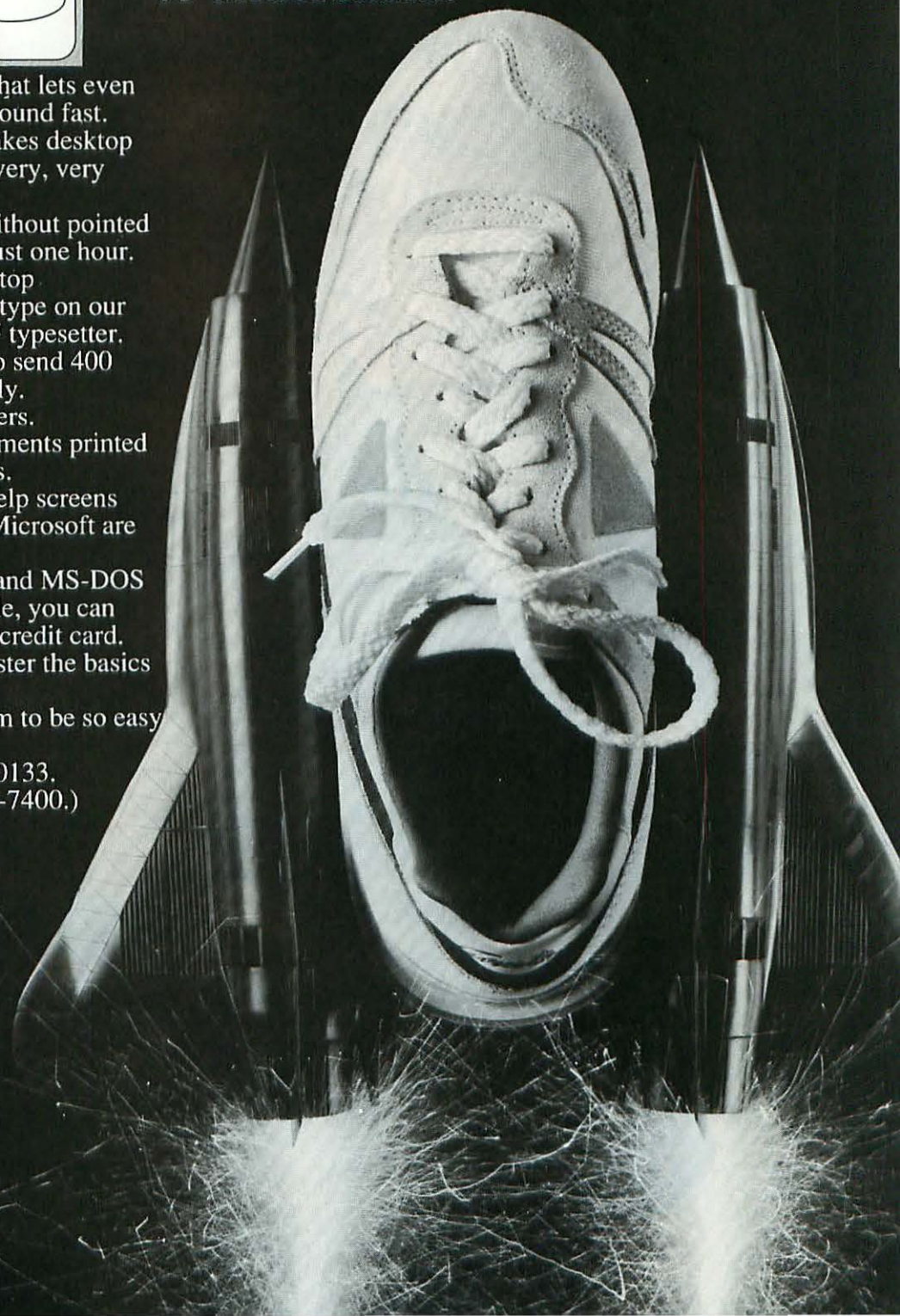
OfficeTalk is both Macintosh and MS-DOS compatible. To keep things simple, you can even charge on-line time to your credit card. And as we said, anybody can master the basics in just one hour.

It takes an extraordinary system to be so easy for ordinary people to use.

Test it yourself. Call 800 345-0133.
(In Pennsylvania, call 215 664-7400.)

OfficeTalk
Simply the easiest.

OfficeTalk is a trademark of OfficeTalk, Incorporated. Apple is a registered trademark of Apple Computer, Inc. Macintosh is a trademark licensed to Apple Computer, Inc. Microsoft is a trademark of Microsoft Corporation. Linotype is a trademark of Allied Corporation.
©1986, OfficeTalk, Incorporated.



Circle 628 on reader service card

"MindWrite?



Baaah!"

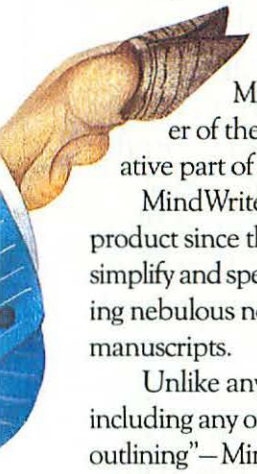
"It's too easy to use."

"They make a big deal out of features we can't find on the standard comparison charts."

"And at $125, it's suspiciously inexpensive. How can we take MindWrite seriously?"

If you make up your mind about MindWrite™ software without looking beyond the obvious conventional criteria, you'll miss the point, too.

The more you write, the more you'll like MindWrite.



Like no word processor before it, MindWrite focuses the power of the Macintosh™ on the creative part of the writing process.

MindWrite goes farther than any product since the Macintosh itself to simplify and speed up the process of turning nebulous notions into matchless manuscripts.

Unlike any other software—including any other that touts "integrated outlining"—MindWrite lets your finished piece evolve smoothly and naturally from your outline.

Because whether you like to work from a quick list of catchwords or a precisely detailed blueprint, you can move effortlessly between outline and draft at any time. It's a simple matter of selecting a display option.

So if an effervescent phrase flashes off your fingertips, you're word processing. If you need to note three ideas for the ending, you're outlining.

And if you think nothing can be this simple, you're almost right.

Nothing *else* is this simple.

The more you rewrite, the more you'll like MindWrite.

If you want to move a MindWrite paragraph, for example, just select it with the mouse and drag it to its new location.

If you want to make identical changes to several headings or paragraphs, just select them all at once (even if they're separated by other text) and make them italic or bold or whatever.

Or drag them to a new location—where they'll appear in the order you selected them.

Nothing else is this foolproof, either. MindWrite's exclusive "accumulating clipboard" stores everything you've cut until you're sure you won't need it.

Numbered sections are automatically renumbered when you move them.

If you're writing to fill a certain space, the word-count feature keeps you posted.

And time-and-date stamping lets you mark changed paragraphs, so it's now much easier to review complex revisions. Speaking of which:

The longer you write, the more you'll like MindWrite.

Now you can navigate through long or complex (or long *and* complex) documents faster than ever before.

No more tedious scrolling. A tap on the mouse-button shows the entire manuscript in outline form. Click on the chapter, section or sub-section you want and it opens. Work, click back to the outline, and move on.

Of course, you can view outline and text in separate windows, too. And have as many windows as you want.

Don't let the low $125 price pull the wool over your eyes.

MindWrite is full-strength Macintosh word processing. With easy learning. Integrated graphics. Its own unique features. Plus more we don't have space for here.

It's guaranteed, too: if within 30 days of purchase you find it doesn't live up to our claims, you can call us for a refund.

So ask for MindWrite at your dealer. Or order directly from us at **800-367-4334.** (800-654-5599 in CA.) We accept Visa and MasterCard.

And if you must pay more for a word processor, that's okay. We'll take more.



MINDWRITE

Macintosh word processing for creative individuals

MindWork Software, P.O. Box 222280, Carmel, CA 93922. MindWrite is a trademark of MindWork Software. Macintosh is a trademark licensed to Apple Computer, Inc.

Circle 518 on reader service card

GIVE YOUR SOFTWARE A GOOSE.

Now that software companies have discovered Mac's graphics interface, their products have become a lot more useful. Because now you can add pictures to your documents. And you know what they say about one picture.

That's where ThunderScan® really becomes valuable. Because ThunderScan can turn most printed images into high-resolution Macintosh graphics. Which means you can insert quality graphics into your files. Making your programs perform like never before.



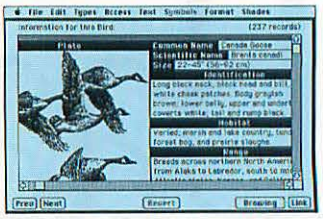
ThunderScan and MacDraw



ThunderScan and PageMaker

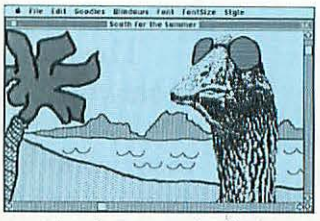


Programs like PageMaker,™ GraphicWorks™ and ReadySetGo™ for desktop publishing. With ThunderScan you don't have to rely on your own artistic abilities or someone else's clip art disk. Instead, you can illustrate your words with just the right graphics (even one-of-a-kind items like your logo or your own portrait). Improving both the professional appearance and readability of your publications.



ThunderScan and Business Filevision

Use ThunderScan with Business Filevision,® dBASE® Mac or Filemaker™ Plus to add pictures and photographs to your data, for more complete, more informative databases. It's perfect for research, real estate portfolios, personnel files — any time you're working with more than words or numbers.



ThunderScan and FullPaint

For those who view Mac as a blank canvas, ThunderScan is an exciting new artistic tool. Not only can you create elegant works of art with ThunderScan's powerful image enhancement software, you can really get wild with SuperPaint and FullPaint.™

And that's just the start. ThunderScan can boost the performance of MacDraw,™ MacDraft,™ MacPaint™ — MacAnything! Plus, Thunderware's new optional $29 connector makes ThunderScan Mac Plus compatible without a wall plug. So if you want to make the best of Mac software even better, take a gander at ThunderScan. At just $229 there's no better way to give your software a goose.

Filevision is a registered trademark of Telos Corporation. GraphicWorks is a trademark of Mindscape, Inc. MacDraft is a trademark of Innovative Data Design, Inc. Filemaker is a trademark of Nashoba Systems, Inc. dBASE is a registered trademark of Ashton-Tate Corporation. FullPaint is a registered trademark of Ann Arbor Softworks. Macintosh is trademark licensed to Apple Computer, Inc. Mac, MacPaint and MacDraw are trademarks of Apple Computer, Inc. ThunderScan, Thunderware and the Thunderware logo are registered trademarks of Thunderware, Inc.

© 1986 Thunderware, Inc.

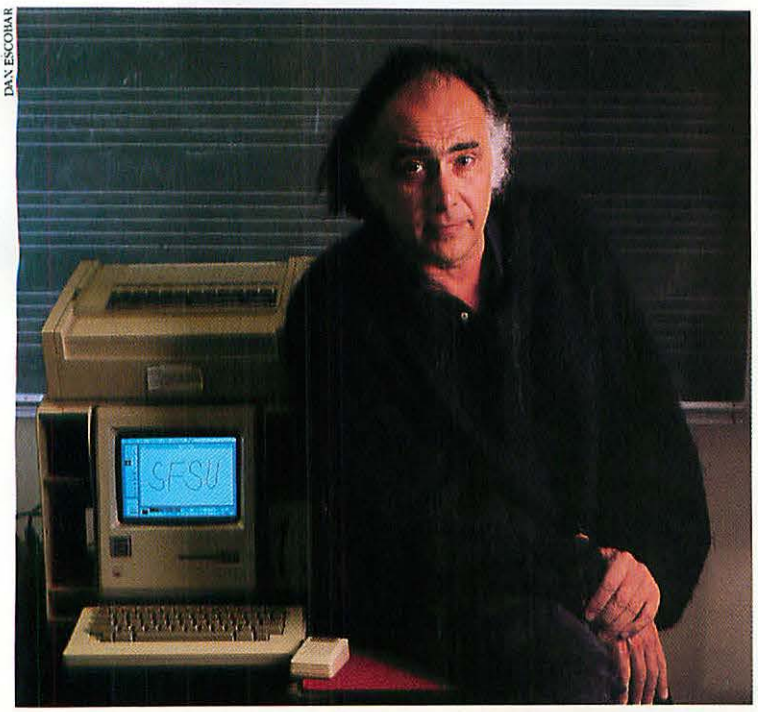
Thunderware® Inc.
21 Orinda Way
Orinda, CA 94563
(415) 254-6581

ThunderScan

Circle 167 on reader service card

Macworld News

by Daniel Farber



DAN ESCOBAR

San Francisco State's dean of creative arts, August Coppola, believes that the Macintosh can be used by artists in novel ways.

Creative Arts

August Coppola, dean of the creative arts department at San Francisco State University and brother of film director Francis Ford Coppola, is involved in a unique project.

His department is administering a program using the Macintosh to explore uncharted territories in art, design, music, dance, theatre, film, broadcasting, and the blending of all these. The various disciplines have joined with the Center for Experimental and Interdisciplinary Arts to work on projects involving choreography, animation, costume design and more.

Funded by a chancellor's grant and donations from Apple, Coppola has a computer lab filled with 13 Macs devoted to student and faculty projects.

Steve Wilson, who teaches conceptual design, also teaches his students to program their own applications on the Mac. Despite their high-tech phobia, they are becoming interested in programming the Mac. The faculty is generally even more afraid of computer technology, but agrees that it is a great tool for teaching. "The nature of artists is to push whatever they come up against," says Wilson, "and artists come up against limits quickly, no matter how good a program is."

Besides commercial applications such as *MacDraw* and *MacPaint,* some faculty members are using and developing courseware programs. Lecturer Derek Hunt of the theatre arts department is using *Theatre Games,* a program that simulates stage design and blocking on the Mac, to teach a beginning design course called Computers and the Performing Arts.

Elizabeth Larkam, former associate director of creative arts computing at San Francisco State and now dance instructor at Stanford, has been designing a tool for choreographing with the Mac. "It's possible for a person to imagine a solo or a duet," says Larkam. "But so far, the human mind has not evolved to accurately imagine more dancers simultaneously performing different steps in different areas of space." *Choreographer's Sketchpad* enables choreographers to see animated figures dancing in patterns through space. The emphasis of the program is to show spatial and temporal relationships among figures, rather than to depict specific body positions.

From developing their own programs to designing a modern ballet, the students enrolled in this lab are finding new possibilities for combining computers and fine arts. Says Coppola, "A computer shouldn't be there just to do what you think you want to get done. Sometimes it should show you options you hadn't thought of."
—Elinor Craig

The Surge in Mac Accounting

You used to be able to count the good Macintosh accounting products on the fingers of one hand. Initial skepticism about the Mac's usefulness as a business computer should be put to rest, once and for all, by the flurry of high-end accounting software releases this year. Several well-known vendors are releasing new or updated products. Apple will probably join in as well with some well-timed promotions and special events.

Expect to see the following products debut in the first half of this year:

Great Plains Accounting Series: an overhauled version of the *Great Plains HardDisk* series of modules for the Macintosh. Comprising eight modules, this new release has been substantially enhanced and redesigned to take much greater advantage of the Mac interface. A single-user program in its ini-



(continues)



Idea... Ideal.

Your Mac has big ideas. But its small screen can sometimes hold you back. Hook up *The Big Picture*™ and get a huge desktop that's ideal for just about any application: desktop publishing, spreadsheets, engineering drawings, architectural renderings, musical compositions. And the Macintosh software that you're working with today already knows how to use *The Big Picture's* larger display.

More than just a full page. *The Big Picture's* 17″ display actually gives you 4½ times more usable desktop than your regular Mac screen. See an entire page in Pagemaker,™ vertically or horizontally. Or with a slight reduction, see two entire pages—and still be able to read the text.

Big picture, small footprint. Your Mac snuggles up perfectly with *The Big Picture,* while providing easy access to the internal drive and programmer's switch. And the 17″ by 21″ footprint leaves you lots of workspace.

Easy Installation. Dealer installation is done in minutes with "clip on" connectors—no drilling or soldering. Your Mac stays portable too. Just disconnect *The Big Picture* to use the Mac's built-in screen.

The Ideal Display for your Mac. See your E-Machines dealer and get *The Big Picture.*

THE BIG PICTURE™

E-Machines Inc.
7945 S.W. Mohawk Street
Tualatin, Oregon 97062
(503)692-6656

Apple, Macintosh, and Macintosh Plus are trademarks of Apple Computer Inc. Pagemaker is a trademark of Aldus Corp.
The Big Picture is a trademark of E-Machines Inc.

Circle 600 on reader service card

The Surge in Mac Accounting (continued)

tial release, the *Accounting Series* will be compatible with Apple's file server when it becomes available.

Business Sense: a modular integrated accounting program with general ledger, accounts payable, and accounts receivable providing inventory and order-entry capabilities. This multiuser product being developed by Monogram–maker of the personal financial management program *Dollars and Sense*–supports one user per module on either the TOPS or MacServe network. In addition, it should be compatible with Apple's file server.–*Steve Mann*

JEFFERY NEWBURY



The Machine in the Garden

Even pulling weeds can be a pleasure for the gardener who knows that months of work will result in edible delights or botanical beauties. If you always wanted to garden but didn't know what to plant, you can take a shortcut via Ortho Information Services' recently released computerized garden guide.

Ortho's *Computerized Gardening* provides a plant selector, a planning calendar, and a plant encyclopedia. The plant selector lets you choose plants on the basis of features such as flower color or shade tolerance and the suitability of your geographical location. In addition, the package includes a 192-page, profusely illustrated book on gardening techniques, including soil management and pest control. For more information contact Ortho Information Services, 575 Market St. #3188, San Francisco, CA 94105, 415/894-5792.

New Clipboard and Scrapbook DAs

The Mac Clipboard and Scrapbook are now more versatile thanks to new desk accessories from Solutions, Inc., of Montpelier, Vermont, developer of *Glue* and *Straight Talk. SmartScrap* allows you to open several Scrapbook files at once, rename them, and create new Scrapbook files. Portions of existing Scrapbook files can be copied into a new file, and you can display a table of contents with a small graphic depiction of each page in the file. Previously, only one Scrapbook file was accessible as a desk accessory within an application. *The Clipper* allow you to crop or resize Clipboard graphics to precise dimensions with true scaling capabilities while maintaining image proportion. You can also paste graphics into a document via a transparent window so that the surrounding material remains visible during placement, useful if your application doesn't let you view the contents of the Clipboard.–*Stuart Silverstone*

Computer Ware

Drew Munster thought a discount software store could succeed in Palo Alto, and he was right. More than two years after opening, his store is thriving. And Computer Ware has a unique distinction–it carries nothing but 600 to 700 Macintosh software programs and accessories, selling at mail-order prices.

Located 15 minutes from Apple's Cupertino headquarters, the store has a crowded user-group atmosphere. On any given day you're likely to see Macintosh evangelist Guy Kawasaki, Mac programmers such as Andy Hertzfeld, a multitude of Stanford faculty and students, or even *Macworld* editors. Apple vice-president of product development Jean-Louis Gassée makes a regular Saturday pilgrimage.

Computer Ware wasn't always exclusively a Mac store, but less than six months after it opened, when Mac products began accounting for a significant percentage of sales, all other machines were phased out.

The store has four Macs with hard disks loaded with software so that users can "try before they buy." Because of space limitations, products are ferried by moped from a nearby warehouse. Point-of-sale and inventory control are handled by a sophisticated program written by Munster.

Not content to be just a neighborhood computer store, Computer Ware is expanding into mail order and has established relationships with major corporate accounts. Like most die-hard Macintosh enthusiasts, the store's employees are evangelists for the Mac as well as the machine's most informed critics. You can reach Computer Ware at 415/323-7557.

GEORGE STEINMETZ



Computer Ware cofounders Derek Van Atta and Drew Munster had just another hole-in-the-wall discount software store until they decided to carry only Macintosh products.

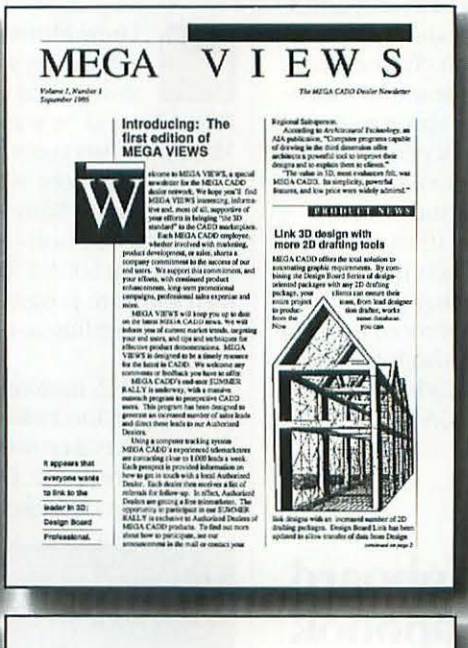
Free Fractals

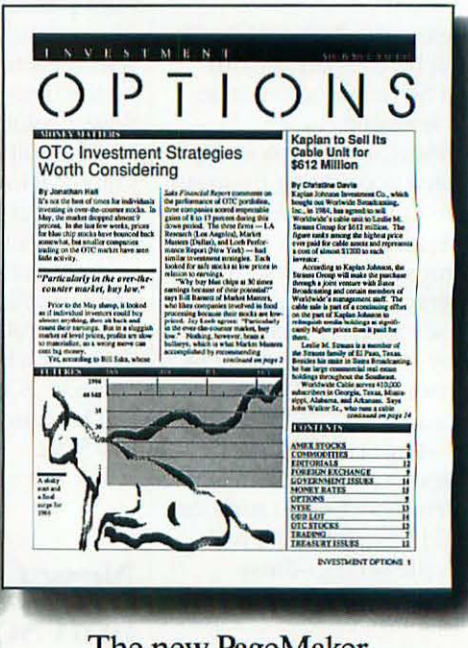
Fractals have set off a small explosion among Macintosh programmers, resulting in a large and diverse collection of free programs that illustrate this intriguing mathematical concept. First conceived by Benoit Mandelbrot in 1975, *fractal geometry* is a noneuclidean form of geometry that defines shapes in fractional dimensions, such as 1.25 or 2.77. Computer graphics magicians, like those at Lucasfilm, use fractals to construct remark-

(continues)

7 Ways To Make The News.


PACIFIC NURSERY RETAILERS ASSOCIATION
NEWS
Volume IV, Number 2, January 1988
PEST POPULATION APPEARS TO DWINDLE
By Loren McDole
A new and exotic apple-tree pest, the Terrarious minutus, which infested many Washington State apple nurseries in early 1987, appears to be on the wane. Eradication efforts are paying off, according to the state Department of Agriculture. Last month, the department monitored 7,083 traps yielding 54 of the little pests, down from 178 earlier in the year.
The Terrarious minutus, which eats the leaves but not the fruit of the apple tree, lays its eggs in clusters on tree trunks. At first the clusters appear bright red, but then fade to the color of bark, "making visual detection virtually impossible," says Lewis DeGrew, chief entomologist in the Plant Services Division of the Washington State Department of Agriculture.
Fortunately, the infestation did not threaten the state's important apple sales, since the larvae feed only on tree leaves. Nevertheless, an emergency
quarantine on nursery-stock shipments was imposed to prevent the pest from reaching other states. Had the blight spread, the reputation of Washington's nursery retailers could have been seriously damaged.
Public hearings are slated for next month to see if the quarantine should be lifted. Until then, all apple-tree shipments from the infested areas must be approved by state officials. A new brochure outlines how the state defines and deals with pest emergencies; it is now available from the Plant Services Division of the Washington State Department of Agriculture.
Terrarious minutus: the little rascal.
BOARD INCREASES TRADE PROMOTION
By Becky Donovan
The Pacific Nursery Retailers Board of Directors has greatly expanded the association's goal for trade promotion for the upcoming year. After six months of successful advertising on a popular radio gardening program, the board decided to add television to its list of media outlets. Several funding options are under consideration to cover the high cost of television spots.
Possible funding sources include a matching grant from the Nursery Marketing Consortium, an arm of the United States Association of Nurserymen; profits from conference and training events; percentage-of-sales income; and a special membership fund drive.
In other actions at the October 10 meeting presided over by President Jeffrey Smith, the board approved an increase in health and other insurance benefits for employees of association member firms. The package of health, life, dental, and eye insurance is made possible through the Association for Pacific Businesses, which offers extended benefits to employees of small companies. Employee groups as small as one person are eligible for coverage.
1


MEGA VIEWS
Volume 1, Number 1
September 1988
The MEGA CADD Dealer Newsletter
Introducing: The first edition of MEGA VIEWS
Welcome to MEGA VIEWS, a special newsletter for the MEGA CADD dealer network. We hope you'll find MEGA VIEWS interesting, informative and, most of all, supportive of your efforts in bringing "the 3D standard" to the CADD marketplace.
Each MEGA CADD employee, whether involved with marketing, product development, or sales, shares a company commitment to the success of our end users. We support this commitment, and your efforts, with continued product enhancements, long-term promotional campaigns, professional sales expertise and more.
MEGA VIEWS will keep you up to date on the latest MEGA CADD news. We will inform you of current market trends, surprising user end users, and tips and techniques for effective product demonstrations. MEGA VIEWS is designed to be a timely resource for the latest in CADD. We welcome any comments or feedback you have to offer.
MEGA CADD's end-user SUMMER RALLY is underway, with a massive mass-fi program to manufacturers CADD users. This program has been designed to generate an increased number of sales leads and direct these leads to our Authorized Dealers.
Using a computer tracking system MEGA CADD's experienced telemarketers are contacting close to 1,000 leads a week. Each prospect is provided information on how to get in touch with a local Authorized Dealer. Each dealer then receives a list of referrals for follow-up. In effect, Authorized Dealers are getting a free telemarketer. The opportunity to participate in our SUMMER RALLY is exclusive to Authorized Dealers of MEGA CADD products. To find out more about how to participate, see our announcement in the mail or contact your Regional Salesperson.
According to Architectural Technology, an AIA publication, "Computer programs capable of drawing in the third dimension allow architects a powerful tool to improve their designs and to explain them to clients."
"The value in 3D, most evidently felt, was MEGA CADD. Its simplicity, powerful features, and low price were widely admired."
PRODUCT NEWS
Link 3D design with more 2D drafting tools
MEGA CADD offers the total solution to automating graphic requirements. By combining the Design Board Series of the design-oriented packages with any 2D drafting package, your clients can convert their
It appears that everyone wants to link to the leader in 3D: Design Board Professional.
Link designs with an increased number of 2D drafting packages. Design Board Link has been updated to allow transfer of data from Design


INVESTMENT
OPTIONS
MONEY MATTERS
OTC Investment Strategies Worth Considering
By Jonathan Hall
It's not the best of times for individuals investing in over-the-counter stocks. In May, the market dropped almost 9 percent. In the last few weeks, prices for blue chip stocks have bounced back somewhat, but smaller companies trading on the OTC market have seen little activity.
"Particularly in the over-the-counter market, buy low."
Prior to the May slump, it looked as if individual investors could buy almost anything, then sit back and count the winnings. But in a sluggish market of level prices, profits are slow to materialize, so a wrong move can cost big money.
Yet, according to Bill Edin, whose
Kaplan to Sell Its Cable Unit for $612 Million
By Christine Davis
Kaplan Johnson Investment Co., which bought the Warwick Broadcasting, Inc., in 1984, has agreed to sell Worldwide's cable unit to Leslie M. Strauss Group for $612 million. The figure ranks among the highest price ever paid for cable assets and represents a cost of almost $1200 to each investor.
According to Kaplan Johnson, the Strauss Group will make the purchase through a joint venture with Bates Broadcasting and certain members of Worldwide's management staff. The cable sale is part of a continuing effort on the part of Kaplan Johnson to relinquish media holdings in significantly higher prices than it paid for them.
Leslie M. Strauss is a member of the Strauss family of El Paso, Texas. Besides his stake in Bates Broadcasting, he has large commercial real estate holdings throughout the Southeast.
Worldwide Cable serves 410,000 subscribers in Georgia, Texas, Missouri, Alabama, and Arkansas. Says John Walker Sr., who runs a cable
CONTENTS
AMEX STOCKS 4
COMMODITIES 8
EDITORIALS 12
FOREIGN EXCHANGE 3
GOVERNMENT ISSUES 11
MONEY RATES 11
OPTIONS 5
NYSE 13
OSD LOT 16
OTC STOCKS 10
TRADING 7
TREASURY ISSUES 11
INVESTMENT OPTIONS 1


Madison General's
HealthFile
Outpatient Services Expanded
Renovation Increases Hospital Efficiency
Six years ago, Madison General faced serious space restrictions, which limited hospital services and slowed subscriber growth rates to less than 5 percent. The original elongated hospital design also contributed to staffing and logistical problems. At the time, Madison's board of directors selected a building plan that added a 10-story patient tower, while retaining several existing structures to save an estimated $20 million in construction costs. The combined plan costs $43 million, as opposed to $75 million for an entirely new hospital.
The design converts a total of 175,000 square feet into other uses, such as classrooms, business and administration offices, medical records storage, a pharmacy, a medical library, and a new auditorium. Additionally, small nursing units are replaced with more efficient larger ones, which alone may save Madison General $1.7 million a year.
The new hospital tower consolidates departments and shortens travel distances between areas of the hospital to solve problems associated with the old configuration. A recently completed survey shows that the tower creates no increase in patient travel time, and that outpatient services on the first floor have been combined to a dramatic size in Madison's share of the market — from 35 to 55 percent, says Madison General President Anthony G. Wells. "The end result of this major undertaking is a modernized facility that can
A floor plan of the new outpatient rooms.
In This Issue:
Workshop proves that exercise is not just for the young. Page 3
HealthNet launches its outreach program for the homeless. Page 4
Campaigns heat up as board elections approach. Page 4
Exercise Test Hits the Road
Madison General's exercise and fitness workshops underscore the hospital's ongoing commitment to cardiovascular health. As part of that program, the hospital provides low-cost exercise-tolerance tests for anyone about to take up a vigorous exercise routine. Now, a new mobile unit provides the same high-quality stress tests to subscribers in outlying areas. If you're over 40 or have a family history of heart disease, you're a candidate for the exercise-tolerance test. One out of 10 middle-aged American males and a smaller percentage of women suffer from "silent" heart disease, which strenuous workouts could aggravate.
A stress test measures the heart's ability to supply oxygenated blood to working muscles. The procedure records the heart's electrical activity, while checking the vital signs during increasingly demanding exercise on an automated treadmill.
The exercise-tolerance test is not a definitive diagnosis of cardiovascular
A new test conducts stress tests for outlying subscribers.
HealthFile 1


CONSTRUCTION
MATERIALS
Factory-Built Housing
Sweden Takes the Lead
In an age of stricter building and energy codes, both here and abroad, factory-crafted houses are beginning to make sense. At least they make sense to Swedish home buyers, 95 percent of whom ordered their houses from factories last year. Sweden's 8 million inhabitants live on a land mass about the size of California. The country's small size and centralized government make decision-making a snap compared with state and federal regulatory procedures in the United States. One policy the government is currently pushing is independence from nuclear-generated electricity and the elimination of oil-fired home heating. This national policy has helped generate the sudden demand for the energy-efficient factory-built homes, in spite of their high cost.
Until recently, Swedish consumers, like their American counterparts, have been reluctant to purchase energy-saving features for their homes. But official pressure, coupled with the almost annual threat of an energy crisis, have convinced Swedes to open their wallets.
For the manufacturers, an in-house operation means lower design fees, which can be amortized over many units, and the
Continued on page 2
VOLUME 12, NUMBER 6 FALL 1987
New Synthetics for Thin Insulation 2
Restructuring Old Structures 2
Harold Simms' New Idea 3
Alberta's Design Revolution 4
Buildings of Choice for Washington D.C. 4
CONSTRUCTION MATERIALS
Housing In a Hot Climate
A growing number of home contractors in Southern states are using a new roofing system developed by the Energy Design Concern of Atlanta, Georgia. In recent years, stock house plans have fared badly in the South because the combination of heat and humidity call for innovative energy controls. But RTC's system, which emphasizes roof-top ventilation, has proved popular with new-home customers who want to conserve energy and cut
daily annual fuel costs significantly.
During the hot summer months, temperatures in a closed attic can exceed 120 F. However, when roof's vents, such as EDC's Reflectit's mesh panels, are placed across the eaves of a house with light-colored roofing, attic heat and screened-in ventilation drop dramatically. In the winter, the vents are covered with temperature-plywood, down that trap warm air to help heat the rooms below.
The roofing design works for homes with either cathedral ceilings or
Continued on page 4


The South Sarasota Yacht Club
WINDJAMMER
Issue Number 56, January 1988
Winning Form in Dominican Regatta
U.S. Team Surprises the World
The Americans seemed as shocked as anyone that they brought the Dominican Cup home for Christmas last month. They did so mainly through the sleek performance of their fast One-Tonner, Talia, owned by Stephen Armstrong. Doug MacIntyre, 1983 Olympic silver medalist in sailing competition, skippered the winning boat, with South Sarasota yachtsman Dwight Burleigh manning Talia in the decisive second race.
The rest of the team, competing in two larger yachts, lagged painfully behind, but their final results were good enough to keep the Yanks ahead in the end. Larry Young's Sunrise (rated 32.0) was 16th; Mark Miller's Four Score (35.2) was 16th.
Changing weather patterns made consistent sailing almost impossible. Although a good wind blessed challengers in the first race, which was run on an Olympic inshore course, a faint-hearted breeze marred the shorter offshore race for most of the teams. The brief gusts in the second race, however, worked to Talia's advantage, according
The valiant Talia: upending expectations.
Foresight Forestalls Emergencies
Agile action such as crouching, crawling, and sliding backside-first is one way to keep body and soul above sea level. But it's not always enough, especially for a busy crew, which can sometimes overlook personal safety to get a job done quickly. And a stockpile of high-tech rescue gear may only lull an otherwise smart sailor into a false sense of security. The best hedge against a man-overboard emergency is careful planning.
One of the easiest and cheapest safety measures is extra 6-foot sail stops, which you can fashion quickly into temporary grab-lines. Sail-stop material, available from any sailmaker, is tough and virtually slip-proof. It knots well, and you can cinch it to the metal tubing of the pulpit with a rolling hitch.
In foul weather, additional makeshift grab-lines can spell the most experienced sailor's fears. Climbing from the cabin to the cockpit, for instance, is a treacherous proposition, considering the likelihood of your being shacked overboard after standing upright. However, by securing sail-stop loops within easy reach on both sides of the cockpit, you can mitigate this danger.
If deck-top lifelines are incompatible with your boating style, or you require additional safety measures, the only alternative is a safety harness. But it's important to remember that, like rescue
continued on page 3


legal line
Volume 2 Number 6 January 1988
Family Law to Highlight D.C. Meeting
Carrie Johnson
Almost every attorney comes in contact with some facet of family law during the course of a career. But now it's more important than ever to keep abreast of family law statutes. This year, the state legislatures passed the controversial Juvenile Justice and Family Law Reform Act, which is the focus of the state bar association's annual meeting in Washington, D.C., March 3-6.
The new legislation radically changes the philosophical underpinnings of the juvenile-justice law that has guided the state since 1911. The intent of the original family law was to allow courts to act in place of parents whenever abuse or neglect endangered a child's well-being or contributed to delinquent behavior. As the family courts evolved during the century, the emphasis on protecting and rehabilitating children grew in importance.
The new law, however, draws a sharp distinction between abused and delinquent children. While children in need of protection from indifferent or cruel caretakers are handled as before, delinquent youth are now held accountable for their actions in much the same way adult offenders are. Court proceedings are more adversarial in nature; the accused receive the full panoply of rights, and rules of evidence apply. Court proceedings for youthful offenders are open to the public and press — in line with legislative thinking that it is the public's right to know how the courts dispose of cases involving the criminally accused.
Still, legislators were not indifferent to the concerns of child
continued on page 2
An Evening with Justice Long
Frank Backstock
On December 28, in Hilton House overlooking the Wabash, silverware, dignitaries, and the like gathered for cocktails, dinner, and testimonials honoring Supreme Court Justice Howard Long. Lincoln County Bar Association President Clarence Harvey organized the evening to pay tribute to Justice Long's 22 years on the high court bench, and not, as one author erroneously stated, to mark the Judge's
continued on page 2
Justice Long
Ownership Dominates Office Moves
Charlene McCarther
The buzzword for law-office relocation in 1988 is equity. Owning your digs means cornering your economic and spatial destiny, while avoiding the costly chore of moving when business taxes off. The value of such an arrangement is clear — it is estimated that construction costs for law-firm space can easily reach $70 a square foot.
Finding a building with the right location and space requirements, however, often presents an insurmountable obstacle. Affordable buildings with room for expansion usually include left or warehouse real estate outside the hub of the city — less than ideal accommodations for a growing firm. But fortunately, certain building owners in the '80s have worked to the advantage of professionals' industries such as legal services.
The most important of these is the almost non-stop high-rise office construction that has created a square-foot glut and left many developers shaking in their boots. The builder's dilemma is a tenant's delight — often taking the form of rent abatements, construction packages, and, yes, partial ownership.
An equity position for a law firm translates into tax write-offs, depreciation allowances, additional cash flow, and fixed rent for the life of the lease. Other fiscal
continued on page 2
Legal Line 1

The new PageMaker Portfolio gives you the ability to create professional looking newsletters on your Macintosh™ with PageMaker® desktop publishing software. Even if you've never designed anything in your life.

You'll get disks containing seven collections of professionally designed newsletter templates, 21 in all, that need only your masthead, copy and graphics to be complete. Plus a 114-page workbook that teaches the basics of graphic design and gives you a set of tips for working with PageMaker, all for just $79.

Call toll free 1-800-33-ALDUS for order information, or see PageMaker Portfolio at your local Aldus dealer today.

And start making your newsletters look more newsworthy.

Aldus Corporation, 411 First Ave. S., Suite 200, Seattle, WA 98104.

PageMaker Portfolio: Designs for Newsletters will be available soon for PC AT™ and compatible computers.

PageMaker is a registered trademark of Aldus Corporation. Macintosh is a trademark of Apple Computer, Inc. AT is a trademark of International Business Machines Corporation.

ALDUS

PageMaker®

Circle 306 on reader service card

Free Fractals (continued)

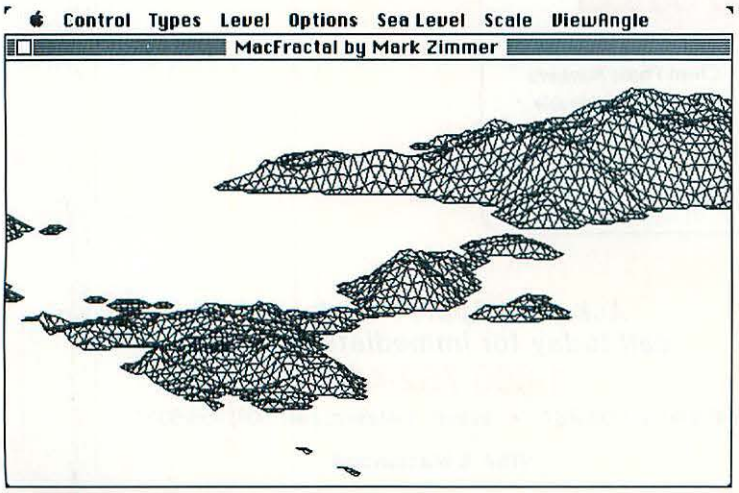
ably realistic landscapes, while others use them to create abstract images. Now you can do the same with your Macintosh.

Several programs allow you to explore fractal landscapes. With Jim Cathey's *Fractal Contours,* for example, you can draw imaginary scenes of mountains or foothills and surround them with water. Aside from the type of landscape, however, the only other choice *Fractal Contours* has to offer is the level of detail (resolution).

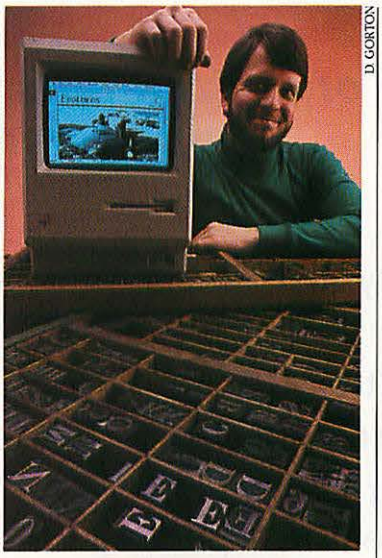
MacFractal, by Mark Zimmer, gives you considerably more. You can, for example, vary your point of view, from directly overhead to head-on. You can also raise or lower sea level—turning a mountain range into an archipelago—or expose the ragged bottom contours of the computer's calculations. You can zoom in for a close view or back away for a distant shot, change the resolution, specify the landscape's basic building blocks, and individually shade them.

Most other available programs deal with fractals that are members of what's called the Mandelbrot set. Two of them, both called *Mandelzoom* (one by Glenn R. Brown, the other by Robert P. Munafo), were inspired by A. K. Dewdney's "Computer Recreations" column in the August 1985 issue of *Scientific American.* Similar to microscopes, they can zoom in and out on the ever-changing details of the Mandelbrot set. Another program, *Julia,* by Richard Koch, explores the graphic relationship between the Mandelbrot set and the related Julia set and draws several familiar Julia set fractals, often called *dragons,* on command. But the best of the fractal programs is probably *Mandelbrot,* also by Richard Koch. This is partly because the program works almost entirely by point-and-click (which makes *Mandelbrot* easier to use than almost any other fractal program) and partly because *Mandelbrot* can produce stunning graphics. For knockout fractals, however, be prepared to tie up your Mac for a while—eight hours or more for large, high-resolution drawings.

Many of the programs described above have help files that not only show how the program works but also explain the concept of fractals in detail. All the programs are available from user groups, electronic bulletin boards, and commercial information utilities such as CompuServe.—*Robert C. Eckhardt*



Even if you don't understand the complex mathematics of fractal geometry, fractal programs provide hours of interesting viewing.



D GORTON

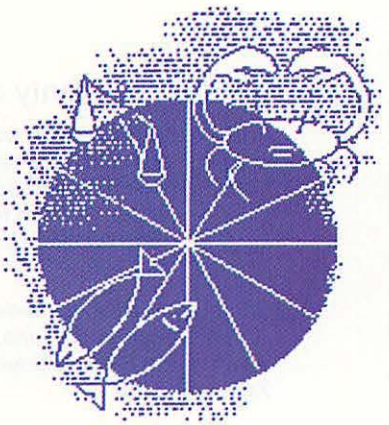
PageOne *program developer Chris Carr places the Mac above old trays of cold type.*

Page Layout Software

If you create page layouts for newspapers or magazines, look into *PageOne,* a $150 program developed as an outgrowth of a master's thesis at Ohio University's School of Visual Communication. *PageOne* is intended for designing individual pages or spreads, rather than multipage documents with automatic text-flowing. It allows variable grid spacing (vertical and horizontal) on facing pages, in pica and point units. In measures convenient to a page designer, the program will size a picture—say, 45 picas wide by 50 grids deep—using a grid unit based on the type size (10-point over 11-point spacing, for example). The software also measures the length of a text file in grid units.

According to developer Chris Carr, former graphics director of Alabama's *Birmingham Post Herald,* "For most publications, pages have traditionally been drawn by hand on a reduced-size grid or 'dummy' sheet with hand-written instructions to the production department. This program makes that process faster and more precise, while allowing several different ideas to be tested."

MacPaint and *MacDraw* PICT documents that you import into *PageOne* can be automatically scaled or cropped to precise dimensions, or you can use gray blocks to show where pictures or graphics will appear. Actual fonts are displayed for headlines, captions, and text. The screen display is 25, 50, or 100 percent of actual size or can be reduced to fit. You can print your document scaled to fit on one page or full-size on tiled pages. For more information contact the Ohio University School of Visual Communications, Athens, OH 45701. —*Stuart Silverstone*



Mac Astrology

For those of us inclined toward the stars, *Graphic Astrology* produces astrological charts and compiles aspects and other cosmic data. *Graphic Astrology* is useful for people who already know how to interpret a chart but hate to compute the multitude of equations necessary for creating one. Accurate and easy to use, although hampered by a somewhat awkward interface, the program provides three reports: the

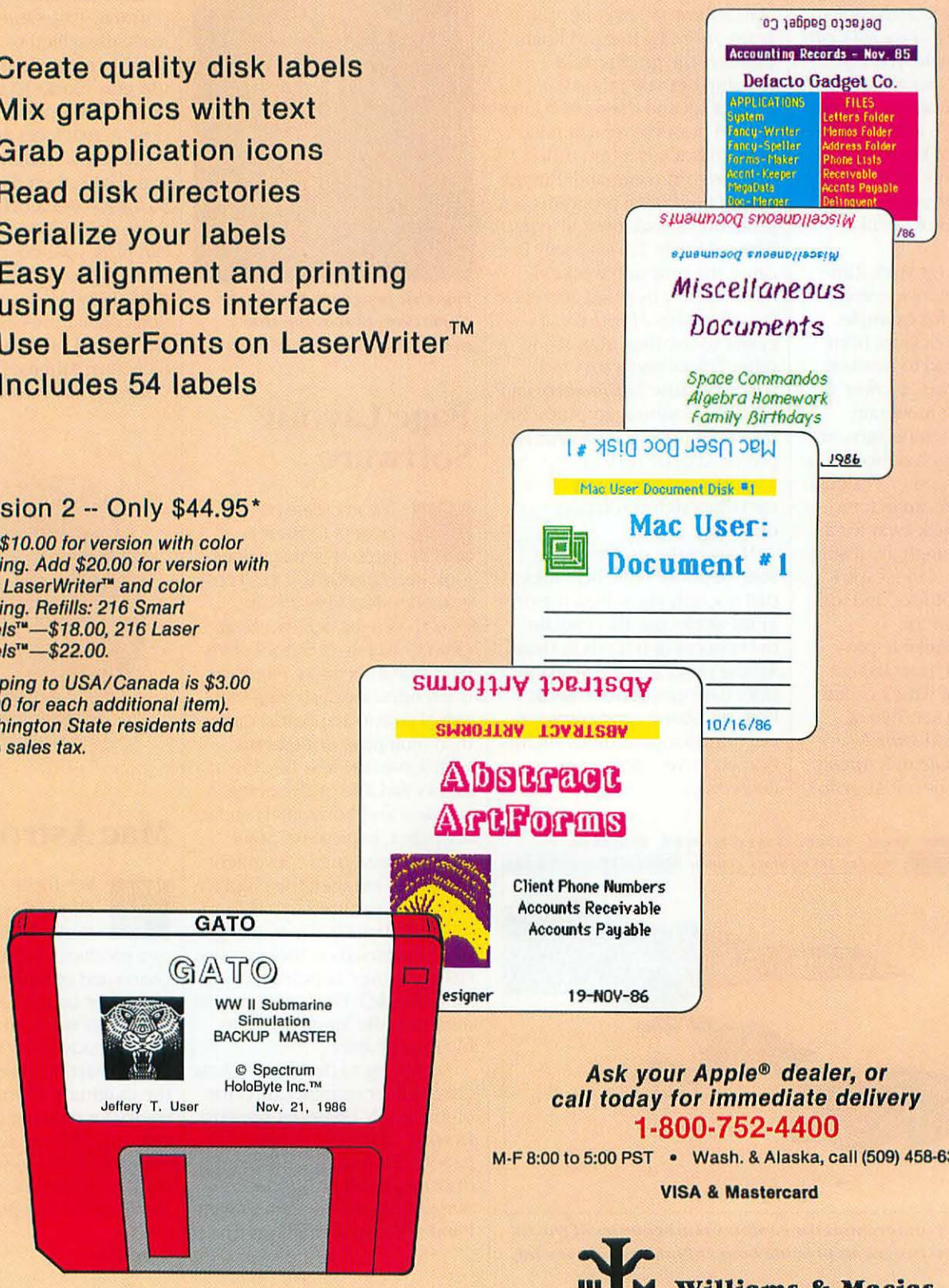
(continues)

Williams & Macias

myDiskLabeler™

Be as organized outside your Macintosh™ as you are inside

- Create quality disk labels
- Mix graphics with text
- Grab application icons
- Read disk directories
- Serialize your labels
- Easy alignment and printing using graphics interface
- Use LaserFonts on LaserWriter™
- Includes 54 labels



Version 2 -- Only $44.95*

Add $10.00 for version with color printing. Add $20.00 for version with both LaserWriter™ and color printing. Refills: 216 Smart Labels™—$18.00, 216 Laser Labels™—$22.00.

**Shipping to USA/Canada is $3.00 ($1.00 for each additional item). Washington State residents add 7.8% sales tax.*

Ask your Apple® dealer, or call today for immediate delivery

1-800-752-4400

M-F 8:00 to 5:00 PST • Wash. & Alaska, call (509) 458-6312

VISA & Mastercard

Williams & Macias

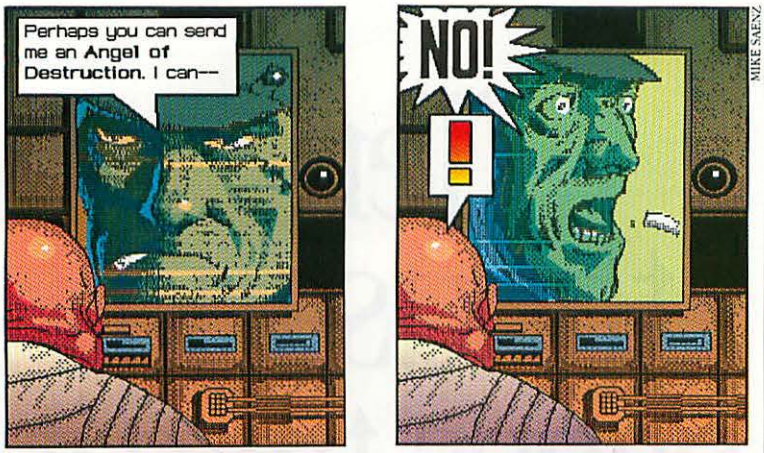
P.O. Box 19206 Spokane, WA 99219

Apple, Macintosh and Laserwriter are trademarks of Apple Computer, Inc. Spectrum Holobyte is a trademark of Spectrum Holobyte, Inc.

Circle 374 on reader service card

chart itself, a data page with "aspectarian" and numerical values, and a brief interpretation of each planetary position. *Advanced Graphic Astrology* calculates natal charts, three types of progressions, and offers a choice of tropical or heliocentric astrology. The program also generates a planetary midpoint table.

Graphic Astrology is priced at $39.95, and the advanced version is $129.50. They're available from Time Cycles Research, 27 Dimmock Rd., Waterford, CT 06385.—*Otto Waldorf*



The panels shown here of Mike Saenz's new Macintosh-based comic book—*Iron Man,*for Marvel Comics—were color-separated using Pixel Craft's Kaleidoscope system.

Kaleidoscope

Pixel Craft of Dix Hills, New York, is developing a color graphics workstation for producing color separations ready for press. The Kaleidoscope system is currently based on a customized MS-DOS system but will be ported to the Mac soon, according to Kenneth Giordano, president of Pixel Craft. The key to the system is a program that allows you to specify either PMS colors or actual dot percentages for the four process colors (cyan, magenta, yellow, and black) used in color separations.

Macintosh graphics files can be ported into Kaleidoscope and images scanned into the system. The artist then traces the polygons of the illustration to create a vector representation of the image, and specifies the colors. The program also has an auto-tracing function. Kaleidoscope then automatically creates four files based on the four process colors. At this point you can send the files to a color separator to create final film and a color proof. Kaleidoscope provides 100 tone levels for each of the four colors, which adds up to 100 million possible colors. The workstation's color monitor displays 32,000 colors, which are calibrated to match the actual colors of the pre-press proof.

Kaleidoscope also has a PostScript interpreter that will convert drawings into PostScript commands for halftones and for printing on PostScript printers, such as the LaserWriter or the Linotronic 300. PostScript allows you to specify 1 percent increments for dot screens, resulting in very accurate reproductions. Files of complex drawings are small, averaging 15K to 20K.

The real value of Kaleidoscope is that it replaces the tint-laying function performed by million-dollar Scitex machines. Kaleidoscope's other professional features include ramping (blending colors), both straight line and concentric; trap values (for bleeding color into black areas); and screen ruling up to 180 lines per inch.

The Kaleidoscope system greatly reduces the cost of preparing high quality four-color illustrations. Pixel Craft sells the Kaleidoscope workstations for around $50,000. The MS-DOS configuration includes a personal computer, a monochrome monitor, a color monitor, a scanner, and software. A Macintosh version will be based on Apple's next generation Mac. For more information contact Pixel Craft at 26 Woods End Rd. N, Dix Hills, NY 11746.

TextEffects

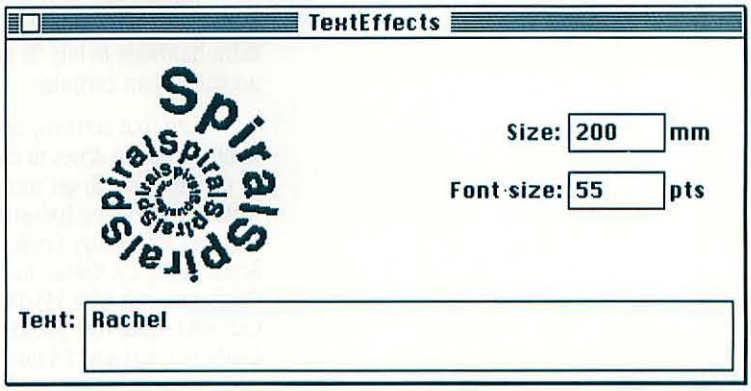
An easy-to-use program from the United Kingdom lets you manipulate text using PostScript commands on the LaserWriter. *TextEffects* offers an array of PostScript effects including arch, drag, inverse star, radial, name, rainbow, shades, spiral, spokes, and star. The manual provides tips on using the program and approximate times for printing (a spiral can take from three to ten minutes). You select the desired font and point size as well as the diameter, if applicable. However, you're limited to a maximum of 256 characters, and you can't save *TextEffect* files as PostScript files for inclusion in documents. For more information contact MacQueen Ltd., Eliot House, 8-10 Hillside Crescent, Edinburgh, Scotland EH7 5EA, or call 031/558-3333.

PageMaker Portfolio

Aldus Corporation has introduced *PageMaker Portfolio: Designs for Newsletters,* the first in a series of template packages for its desktop publishing program, *PageMaker.* The 21 templates on two disks should provide much-needed assistance to graphic design novices in laying out multicolumn newsletters. The disk also includes a new desk accessory developed by Aldus—WYSIWYG (what you see is what you get)—that eliminates discrepancies between screen and printed versions of *PageMaker* documents. The $79 package includes a well-designed 114-page manual.

In addition, Aldus has released *PageMaker Classroom,* a set of introductory training

(continues)



TextEffects ***lets you take advantage of some PostScript drawing routines to create spirals of up to 256 characters.***

Ten thousand pages, take it or leave it.



For those of you going places, here's a little something that solves big storage problems in the time it takes to say "who has the Farnsworth financial files?"

Introducing Totem.™

A rather revolutionary Bering 20 mb Bernoulli compact disk drive system for Macintosh computers. And, the first truly *portable* 5¼" system. One that lets you tote around 10,000 pages of data on a sleek cartridge about the size of a piece of bread.

Translated, that's 25 times the storage you get on one standard floppy.

Yet unlike floppies, the Totem is no slouch for speed. It's just as fast as a hard disk. In fact, your computer will think it's a hard disk. You can even share it with co-workers. And its advanced Bernoulli aerodynamics make it resist head crashing. If you've ever used hard disks, you know what a pain that can be.

But the real beauty of Totem is that it fits perfectly right under your Mac. No mess. No fuss. And no extra hardware to buy. To add storage, just pick up another Totem cartridge.

Last, but certainly not least, there's a whole family of Totem drives to choose from. They're all in the brochure. To get yours, write or call Bering Industries, Inc., 280 Technology Circle, Scotts Valley, CA 95066. Inside California, call 800 533-DISK. Call 800 **BERING** 1 outside California. Just say "I'll take it."



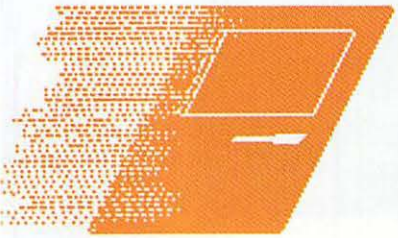
BERING™
A MOUNTAIN COMPUTER, INC. COMPANY

Totem is a trademark of Bering Industries, Inc.
Macintosh is a registered trademark of Apple.

Circle 627 on reader service card

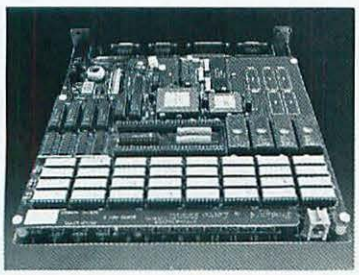
PageMaker Portfolio (continued)

materials for dealers, educational institutions, and people who want to give training programs on *PageMaker.* New users of the program receive a 64-page booklet, *The Aldus Guide to Basic Design,* by sending in their registration cards.



The World's Fastest PC

The Mac Plus is fast compared to an IBM PC, but not to powerful PCs like the Compaq DeskPro 386, which has a 16-MHz clock speed (the Mac Plus's speed is 8 MHz). But pit Levco's 16-MHz, 68020-based Prodigy 4 against the DeskPro 386, and the IBM compatible is left in the dust. According to Levco, its $7000 customized Mac outclassed the DeskPro 386 in a battery of tests. Both systems ran the same standard Sieve, Dhrystone, and Whetstone benchmarks, executed in Pascal and C, using standard compilers (Microsoft BASIC, Consulair C, and Turbo Pascal). No special corrections were applied, even though the 386 has an optimizing C compiler, a slightly faster clock speed, and lower operating-system overhead.



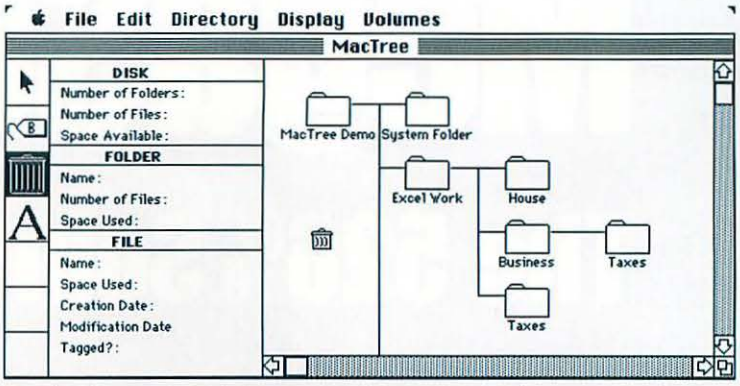
Insert Levco's Prodigy 4 board into your Mac and it outperforms even the most souped-up 386 machine.

Actual percentages varied with the benchmarks and the languages, but on the average, the Prodigy 4 was more than 40 percent faster. Curt Johnson, president of Levco, attributes the difference to the 68020's on-chip instruction cache and its 16-MHz, 80-bit 68881 math coprocessor versus the slower 8-MHz 80287 coprocessor on the DeskPro 386.

Besides being installed in major manufacturing and software development companies, Prodigy 4s are employed as front ends to a Cray computer at the University of California, San Diego, Supercomputer Center. For more information contact Levco at 6160 Lusk Blvd. #C-203, San Diego, CA 92121, 619/457-2001.

A New View on Files

The Hierarchical File System (HFS) now used on the Mac lets you organize a hard disk or a series of files on a floppy much better than the earlier Macintosh File System (MFS)—but it can also make it difficult to find a missing file or to work on a group of files scattered across the disk. To ease those tasks, Los Angeles-based Software Research Technologies claims that its forthcoming *MacTree* will let you view a disk's logical arrangement of files and folders as a tree-shaped visual diagram instead of the flat view you normally see on the Macintosh desktop. Along with presenting that conceptual view, the



MacTree's tree-shaped representation of a disk's contents eliminates most problems that may crop up in keeping track of files and folders on a hard disk.

$49.95 program promises to let you tag any file or group you want and then move, delete, or rename it. For more information contact Software Research Technologies at 2130 S. Vermont Ave., Los Angeles, CA 90007, 213/737-7663.—*Steve Rosenthal*

Tips by Subscription

One of the problems with computer books is that they're often outdated by the time they're published. An author may spend six months writing a book, and the publisher anywhere from three to six months getting it into bookstores. During that interval a lot of software development changes can take place.



WILL MOSGROVE

The Macintosh Bible *coauthors Arthur Naiman and Dale Coleman are immersed in collecting useful Mac trivia.*

Arthur Naiman, author of seven computer books, is coauthoring and publishing *The Macintosh Bible,* a 300-page, well-indexed compendium of tips, tricks, and shortcuts. To make sure it remains current, the publisher is including two free updates in the $21 price of the book. Each update contains new tips, revisions of existing ones, and a revised index.

Every year a fully revised edition will be published, as well as two more updates. This amounts to a subscription fee of $21 per year, which comes to just a few cents per tip. In addition, coauthor Dale Coleman has set up a bulletin-board system exclusively devoted to tips about the Macintosh. For more information contact Goldstein & Blair, Box 7635, Berkeley, CA 94707, 415/524-4000.

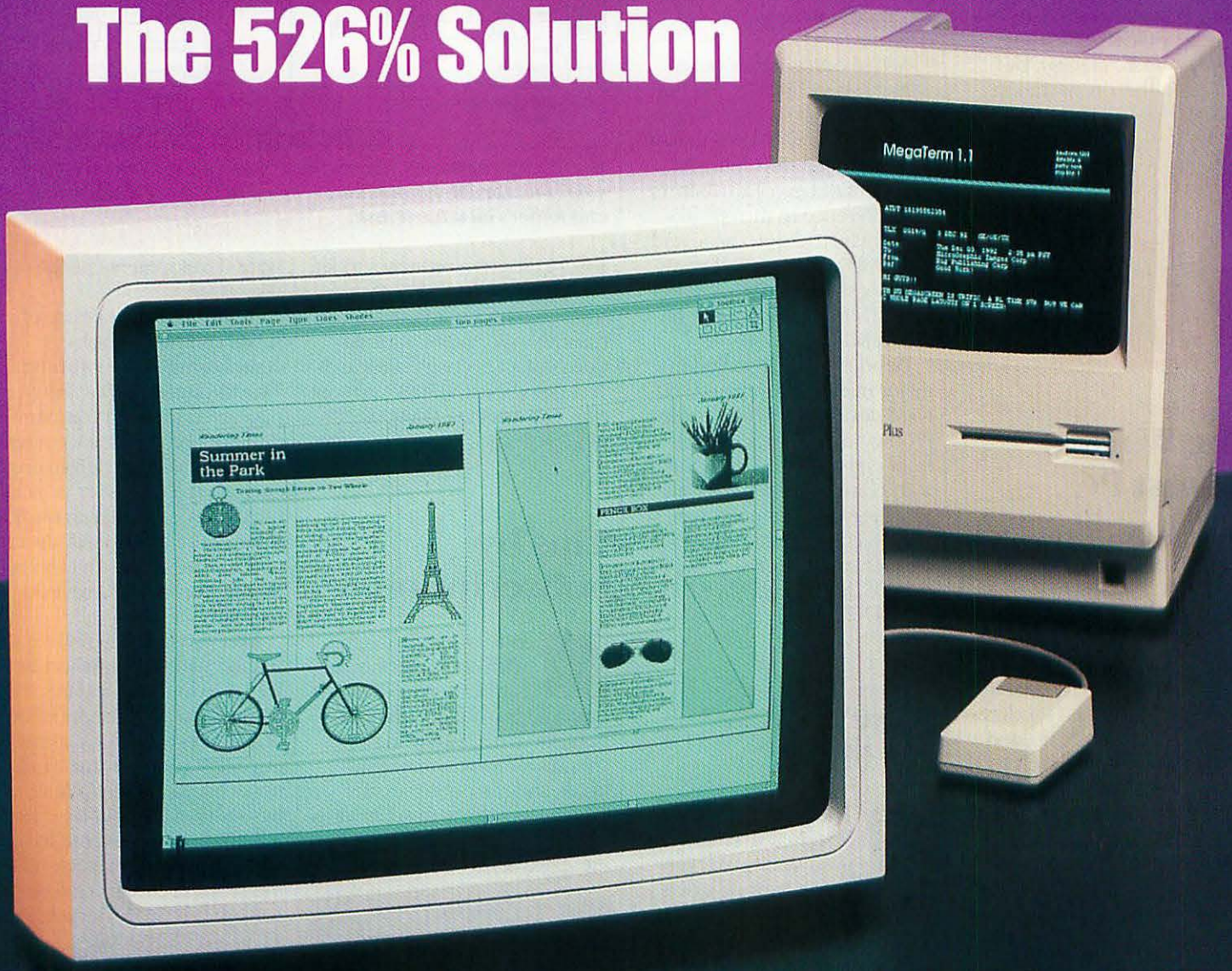
WorksPlus Spell

Microsoft Works word processing module has many useful features, such as its drawing tool, but it lacks a built-in spelling checker, automatic hyphenation, and a glossary for abbreviations.

(continues)

MegaScreen II™

The 526% Solution



MegaScreen II's 19.5" monitor gives you a 526% bigger picture than your Macintosh™ computer, at a new lower price! And MegaScreen II is bigger, brighter, and features the highest resolution of any big screen on the market today.

Compatible with all standard Macintosh software, MegaScreen II lets you see double page spreads, spreadsheets, drawings, plans, scans, CAD layouts, circuits, diagrams, medical files, and just about everything you ever wanted to see larger. 526% larger.

MegaScreen II can be dealer-installed in just 15 minutes, features extra enhancements, user updates, and rock-solid reliability backed by the people who pioneered the first peripherals for the Macintosh.

Find out how you can double your productivity. Ask your local Apple Dealer for a demonstration, or give us a call.

micrographic
IMAGES

20954 Osborne St.,Canoga Park, CA 91304
818-407-0571 • TX: 650-288-0349 MCIMAIL

Circle 235 on reader service card

© 1987 MicroGraphic Images, Corp. All rights reserved. MegaScreen is a trademark of MicroGraphic Images, Corp.
Apple is a registered trademark, and Macintosh is a trademark of Apple Computer, Inc. PageMaker is a trademark of Aldus Corporation and is being used with express permission.

WorksPlus Spell (continued)

Lundeen & Associates' *WorksPlus Spell* fills that gap with one simple installation procedure. Written by Tim Lundeen, one of the principal software engineers of *Microsoft Works,* the $59.95 *WorksPlus Spell* includes spell-checking, automatic hyphenation, and a glossary feature. The program is fully integrated with *Works;* when you install *WorksPlus Spell,* new menu options appear within existing menus. The program is fast: it can check more than one page per second, which Lundeen claims is about ten times faster than other Mac spelling checkers.

You can check a selection, changed paragraphs, or a whole document; you can also check documents interactively. The program displays a list of alternatives to each misspelling it finds, and double-clicking on one of these words inserts it into the document. In addition, you can add or remove entries from the 70,000-word dictionary.

WorksPlus Spell's hyphenation is automatic, but you can also hyphenate manually. The program lets you specify the minimum number of letters you want before and after the hyphen. For more information contact Lundeen & Associates at 800/233-6851 or 800/922-7587 in California.

Scaling the Great Wall

If you think the Macintosh's icon-based interface and high-resolution screen ought to be a big hit in a country with a 5000-year tradition of pictographic writing, you share Apple's thinking about China.

To further brighten the picture, China is nurturing a fast-growing microcomputer development community and a small but expanding market for desktop business computers.

The two big problems of Chinese-language computing—how to input a language with more than 30,000 characters and how to display them—have been solved largely through the use of high-resolution screens and multikeystroke systems that break each character into elements. Up to now, however, sales of personal computers have been dominated by character-oriented machines like the IBM PC and its compatibles, or by Apple II clones. Most Chinese programmers agree that to exploit the full power of their language, they need machines with more graphics capabilities.

Although it is available in the People's Republic of China, through an official distributor and informally through Hong Kong and Singapore, the Mac is still a rarity there. Consequently, Apple is encouraging the creation of Chinese-language software and supporting product education and training. Last October, for example, Apple sent a team of evangelists and programmers on a three-city tour of the mainland to hold a series of seminars on Mac programming.



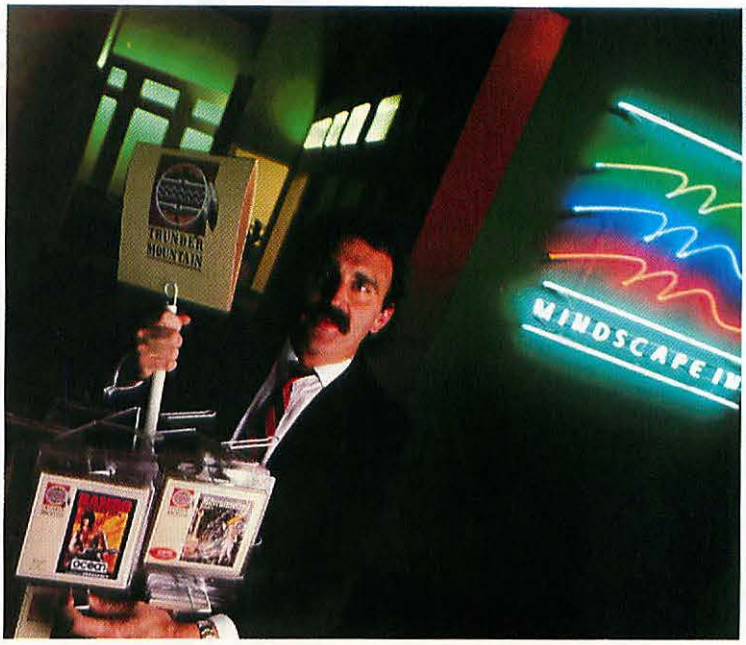
DOUG HIOM

During a tour of China, Apple evangelists found the Chinese enamored of the Mac's graphics and simplicity.

Apple has also been showing potential software authors its willingness to support Chinese development, demonstrating a nearly completed international version of the Macintosh operating system that fully supports 16- by 16-pixel character cells, a variety of scripts, and easy message substitution for well-behaved existing applications.

According to information gleaned at these seminars, some Chinese software created on the mainland will be forthcoming to join products already developed in Taiwan, Canada, the United States, and Japan.

But until the Chinese government promulgates a copyright law (scheduled for this year), most new programs will continue to be custom jobs or academic projects, rather than off-the-shelf software written for any character set or language.—*Steve Rosenthal*



MICHAEL L. ABRAMSON

Quality mass-marketed software priced under $10 is the charter of Mindscape's Thunder Mountain products, says Roger Buoy, company president.

Thunder Mountain

Mindscape, a leading publisher of entertainment software for the Mac, is introducing a new line of low-cost products under the Thunder Mountain label—a mixture of new and existing entertainment, educational, and productivity software. Each Thunder Mountain product will sell for $9.95. The first offering is a new action-graphics Rambo adventure, *First Blood Part II.*

According to Roger Buoy, president of Mindscape, people shouldn't have to pay $30 to $50 for this kind of software. So, Thunder Mountain seeks to bring the equivalent of low-cost paperbacks to the software industry by mass-marketing its products in bookstores, supermarkets, and drug stores. Thunder Mountain programs are available for the Commodore 64, Atari, IBM PC, and Apple II, as well as the Mac. □

Bikers to ban

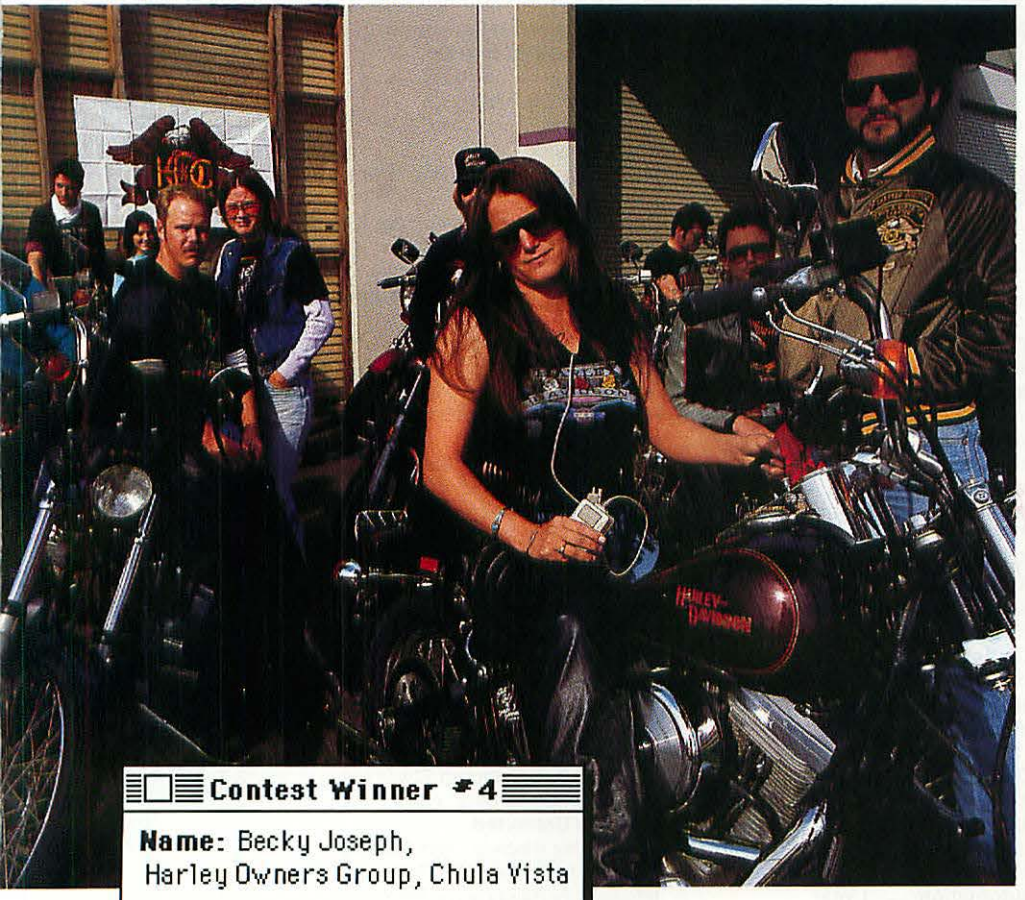
SOFTWARE

NCP denotes not copy-protected.
CP denotes copy-protected.

Affinity Microsystems ... NCP
Tempo *(power user's macro utility)* ..... $69.
Altsys ... NCP
Fontastic *(create your own fonts)* ..... 27.
Ann Arbor ... NCP
FullPaint *(open four documents at once)* .. 55.
ATI ... CP
Teach Yourself Multiplan or Excel ..... 39.
Batteries Included ... NCP
The Mac BatteryPak *(9 desk accessories)* 27.
HomePak or Time Link ..... 29.
Thunder! *(50,000 word spelling checker)* .. 29.
Borland International ... NCP
Sidekick w/Phonelink ..... 59.
Reflex *(information management analysis)* 59.
Turbo Pascal ..... 65.
BPI Systems ... NCP
General Accounting *(full-featured)* ..... 229.
BrainPower ... NCP
Think Fast *(improves recall)* ..... 23.
StatView *(statistics package)* ..... 59.
Graphidex *(DA graphics organizer)* ..... 75.
Designscope *(electronic circuit design)* .. 129.
StatView 512+ *(req. external drive, 512k)* ... 179.
Broderbund ... CP
Print Shop *(create cards and memos)* ..... 49.
Geometry *(over 350 problems!)* ..... 69.
CAMDE ... CP
Nutricalc *(diet & nutrition analysis)* ..... 49.
Nutricalc Plus ..... 175.
Casady Company ... NCP
Fluent Fonts *(two-disk set)* ..... 29.
Fluent Laser Fonts *(Bodoni, Calligraphy, Monterrey, Prelude, Ritz, & Sans Serif)* . *each* 49.
Central Point Software ... NCP
Copy II Mac *(includes MacTools)* ..... 20.
Challenger Software ... NCP
Mac3D *(3D graphics, CAD features)* ..... 129.
Chang Labs ... CP
Rags to Riches Ledger ..... 125.
Rags to Riches Receivables *(req. 512k)* ... 125.
Rags to Riches Payables *(req. 512k)* ..... 125.
Rags to Riches Three Pak ..... 299.
Inventory Control ..... 245.
Professional Billing ..... 245.
Cortland ... CP
TopDesk *(7 new desk accessories)* ..... 39.
Creighton Development ... NCP
MacSpell+ *(spell checker, req. 512k)* ..... 55.
Cricket Software ... NCP
Statworks *(statistical package)* ..... 79.
Cricket Graph *(multiple windows)* ..... 129.
Cricket Draw *(advanced draw capabilities)* 179.
DataViz ... NCP
MacLink Plus *(transfer Mac/IBM data)* .... 159.
Desktop Graphics ... NCP
DrawArt *(MacDraw artwork, req. 512k)* .... 29.
DrawForms *(requires MacDraw)* ..... 30.
Digital, etc. ... NCP
Maccountant *(integrated accounting)* ..... 99.
Turbo Maccountant ..... 275.
Dow Jones ... CP
Straight Talk *(access News/Retrieval)* ..... 62.
Spreadsheet Link ..... 65.
Market Manager PLUS ..... 129.
Dreams of the Phoenix ... NCP
Day Keeper Calendar ..... $35.
Quick & Dirty Utilities Vol. 1 or Vol. 2 ..... 35.
Twelve-C Financial Desk Accessory ..... 35.
Phoenix 3D *(3D graphics)* ..... 65.
Dubl-Click Software ... NCP
World-Class Fonts! Vol. One or Vol. Two .... 29.
World-Class Fonts! *(both Volumes)* ..... 49.
Calculator Construction Set ..... 39.
EDO Communications ... CP
Laserworks *(requires 512k, Laserwriter)* ... 229.
Electronic Arts ... CP
Deluxe Music Construction Set 2.0 ..... 69.
Enabling Technologies ... NCP
Easy3D *(create solid 3D objects)* ..... 79.
1st Byte ... CP
First Shapes *(preschool learning tool)* ..... 32.
Speller Bee, KidTalk, or Mathtalk ..... 42.
Smoothtalker *(speech synthesis)* ..... 52.
Forethought ... NCP
Factfinder *(free-form info organizer)* ..... 49.
FileMaker *(custom forms & reports)* ..... 79.
FileMaker Plus *(feature-packed database)* 159.
Fortnum/Southern
MacInooga Choo-Choo *(512k, NCP)* ..... 21.
MacChemistry *(CP)* ..... 89.
FWB Software ... NCP
Hard Disk Backup *(protect hard disk info)* .. 39.
Hard Disk Partition *(speeds up hard disk)* .. 39.
Hard Disk Util *(program backup)* ..... 59.
Great Wave Software ... NCP
KidsTime *(educational, ages 3-8)* ..... 29.
LOC *(strategy game)* ..... 29.
ConcertWare+ *(music composition)* ..... 29.
ConcertWare+ MIDI ..... 75.
Greene, Johnson ... CP
Spellswell *(spelling checker)* ..... special
Hayden Software ... CP
I Know It's Here Somewhere *(handy filer)* ... 20.
Hayden:Speller *(for Word & MacWrite)* ..... 27.
MusicWorks *(songs for your Mac)* ..... 32.
DaVinci Building Blocks *(NCP)* ..... 46.
Home Design *(NCP)* ..... 49.
Score Improvement System for the SAT .... 59.
VideoWorks & MusicWorks Bundle ..... 59.
Ideaform ... CP
MacLabeler *(print disk labels)* ..... 29.
Imagine ... NCP
Smart Alarms *(DA reminder system)* ..... 39.
Impulse ... NCP
Comic Strip Factory *(create cartoons)* ..... 65.
Industrial Computations ... NCP
Powermath *(equation solving tool)* ..... 52.
Infosphere ... CP
LaserServe *(network software)* ..... 125.
MacServe *(network software)* ..... 250.
Innovative Data Design ... NCP
Paste-Ease *(requires Paint program)* ..... 35.
MacDraft *(new updated version, 512k)* .... 179.
Kensington ... NCP
Graphic Accents *(req. Paint program)* ..... 29.
Type Fonts for Text *(16 new fonts)* ..... 29.
Type Fonts for Headlines *(req. 512k)* ..... 42.
Layered ... CP
Notes...For Excel ..... 42.
Front Desk ..... 75.
Legisoft/Nolo Press ... NCP
WillWriter 2.0 *(prepare your own will)* ..... 32.
Linguist's Software ... NCP
Tech *(1000 different symbols)* ..... 59.

FOREIGN LANGUAGE FONTS
MacCyrillic ..... $39.
SuperFrench/German/Spanish ..... 39.
MacHieroglyphics, MacKana/Basic Kanji, MacSemitic/Coptic/Devanagari, MacKorean, MacArabic, MacGreek, MacHebrew *each* 59.
SuperGreek New or Old Testament ..... 79.
MacGreek/Hebrew/Phonetics ..... 89.
LaserGreek ..... 79.
LaserFrench/German/Spanish ..... 79.
LaserCyrillic ..... 115.
Living Videotext ... NCP
ThinkTank 512k *(outline processor)* ..... 99.
More *(outlines, windows, & tree charts)* .. 159.
MacMemory ... NCP
MaxRam & MaxPrint *(Ramdisk, spooler)* .. 39.
Magnum ... NCP
Natural Sound Effects ..... 27.
Natural Sound Cable & Editor Disk ..... 89.
McPic - Volume 1 or Volume 2 ..... 29.
The Slide Show Magician 1.3 *(CP)* ..... 35.
Manhattan Graphics ... NCP
Desk Design *(2 volume set)* ..... 37.
Ready,Set,Go!3 *(desktop publishing)* .... 175.
Microsoft
Flight Simulator *(the Mac takes flight, CP)* 33.
Learning Multiplan and Chart *(2 disks, CP)* 39.
Basic Interpreter 3.0 *(NCP)* ..... 59.
Chart 1.0 *(42 chart styles, CP)* ..... 72.
Multiplan 1.1 *(63 col. by 255 rows, CP)* ... 111.
File 1.04 *(flexible data manager, NCP)* ... 111.
Word 1.05 *(word processor, CP)* ..... 111.
Basic Compiler 1.0 *(NCP)* ..... 125.
Fortran 2.2 *(compiler, NCP)* ..... 169.
Works 1.0 *(integrated tool, NCP)* ..... 189.
Excel 1.03 *(power spreadsheet, NCP)* ... 225.
Miles Computing ... NCP
Mac the Ripper *(req. Paint program)* ..... 27.
Mindscape ... CP
The Luscher Profile *(personality profile)* ... 24.
The Perfect Score: SAT ..... 47.
ComicWorks *(create your own comics)* .... 49.
GraphicWorks *(newsletters, ads, posters)* 49.
Monogram ... NCP
Forecast *(tax planning)* ..... 41.
Dollars & Sense *(home, small business)* ... 81.
Nevins Microsystems ... NCP
Turbocharger *(disk cache, req. 512k)* ..... 39.
New Canaan MicroCode ... NCP
MDCFinder *(requires 512k)* ..... 20.
Mac Disk Catalog II *(requires 512k)* ..... 32.
Odesta ... NCP
Helix *(req. 512k, external drive)* ..... 105.
Double Helix *(relational, custom menus)* . 289.
Palantir ... CP
MathFlash or WordPlay ..... 26.
MacType *(typing instruction)* ..... 26.
Inventory Control, GL, or AR ..... *each* 69.
inTalk *(communication to emulation, NCP)* 79.
PBI Software ... NCP
Icon Switcher *(customized icons)* ..... 14.
Icon Fun & Games or Business Libraries .. 14.
HFS Locater *(DA organizer for HFS)* ..... 27.
Hard Disk Backup *(supports MFS, HFS)* .. 29.
Peachtree ... CP
Back to Basics GL, AP, or AR ..... *each* 89.
Personal Computer Peripherals ... NCP
HFS Backup ..... 39.
ProVUE Development ... NCP
OverVUE 2.0 *(power-packed database)* .. 149.

Power Users.



Contest Winner #4

Name: Becky Joseph, Harley Owners Group, Chula Vista

System: Mac Plus

Applications: HOG newsletter/database; anthropological research.

Becky Joseph uses her Mac to help power the Chula Vista Harley Owners Group. They meet on the first Wednesday of the month, 7 PM at South Coast Harley Davidson.

The Righteous Brothers (and Sisters).

Our latest contest winner is Becky Joseph, the one in the middle plugged into that lean mean micro machine.

Becky wrote to inform us that she'd consulted with her picturesque colleagues and "we all think I should get one of your prizes." We all tend to agree. Who are we to question the wisdom of the Chula Vista, CA Chapter of the Harley Owners Group? HOG is the largest motorcycle club in the world. Frankly, their powers of persuasion were just too obvious to ignore.

But do they use Macs?

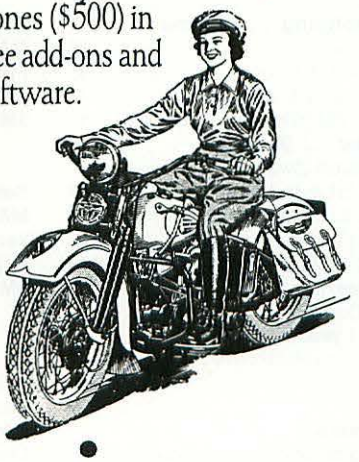
Of course they use Macs. How could a motorcycle club ride their organizational beast without one?

It takes a lot of planning to get 50 odd bikers and their families together for a Poker Run. (During a Poker Run you are handed playing cards at several checkpoints. By the time you get to the destination – a pub – you may have a royal flush.)

Becky uses Thunderscan to digitize Harley art into their newsletter; ReadySetGo! to put it together; and Excel to manage the group's database. And, in her spare time, she uses her Mac for analyzing Indonesian textiles. (She first found out about the Mac from the Apple dealer in Java).

Look, she deserves the prize. So what if the Chapter President "doesn't know a database from a bale of computer paper"?

And, what about you? Do you run your Mac full throttle? Your story could be worth five bones ($500) in free add-ons and software.



"Our Connection."

MacConnection

14 MILL STREET, MARLOW, NH 03456 1-800/Mac&Lisa or 603/446-7711

©Copyright 1986 PC Connection, Inc. MacConnection is a division of, and trademark of, PC Connection, Inc., Marlow, NH.

our bargains.

Racter *(converse with your Mac!)* . . . . . $27.
Balance of Power *(world politics)* . . . . . 30.
King of Chicago *(req. minimum 512E)* . . . . 30.
Brataccus *(great graphics, req. 512k)* . . . . 30.
Uninvited *(mystery adventure)* . . . . . 30.
Deja Vu *(murder mystery)* . . . . . 33.

Origin Systems ... CP
Exodus: Ultima III *(fantasy adventure)* . . . . 38.

PBI Software ... CP
Strategic Conquest *(multi-user)* . . . . . 35.

Psion ... CP
Psion Chess *(3D and multi-lingual)* . . . . . 31.

QWare ... CP
Orb Quest *(graphic fantasy adventure)* . . . 29.

Sierra On-Line ... CP
Championship Boxing *(knock 'em out!)* . . . 25.

Silicon Beach Software
Airborne! *(CP, the classic!)* . . . . . 20.
Enchanted Scepters *(CP, over 200 scenes)* 21.
Dark Castle *(NCP, arcade action)* . . . . . 28.
World Builder *(NCP, program creator)* . . . . 42.

Simon & Schuster ... CP
Star Trek—The Kobayashi Adventure . . . . . 24.

Sir-Tech ... CP
Mac Wizardry *(high-rated fantasy)* . . . . . 36.

Spectrum Holobyte ... NCP
GATO *(submarine simulation)* . . . . . 26.
Orbiter *(space shuttle simulation)* . . . . . 27.
Tellstar II *(No. & So. hemispheres, req. 512k)* 32.

XOR ... NCP
NFL Challenge *(be the coach!)* . . . . . 79.

HARDWARE

Manufacturer's minimum limited warranty period is listed after each company name. Some products in their line may have longer warranty periods.

Apricorn ... 1 year
ApriCord Mac *(Mac Plus parallel interface)*. 75.

Cambridge Automation ... 90 days
MIDI Conductor . . . . . 69.

Curtis Manufacturing ... lifetime
Diamond *(6 outlets)* . . . . . 29.
Emerald *(6 outlets; 6 ft cord)* . . . . . 36.
Sapphire *(3 outlets; EMI/RFI filtered)* . . . . . 47.
Ruby *(6 outlets; EMI/RFI filtered; 6 ft cord)* 55.

Dove Computer ... 90 days
Memory Expansion Units
Mac Snap 524 *(512k to 1 Meg)* . . . . . 159.
Mac Snap Plus 2 *(Mac Plus to 2 Meg)* . . . 309.
Mac Snap 548 *(512k to 2 Meg)* . . . . . 469.
Mac Snap Plus 4 *(Mac Plus to 4 Meg)* . . 1549.

Ehman Engineering ... 1 year
800k External Disk Drive . . . . . 225.

Ergotron ... 1 year
MacTilt *(includes external drive bracket)* . . . 75.
MacBuffer 512k . . . . . 369.
MacBuffer 1024k . . . . . 569.

Hayes ... 2 years
Smartcom II *(communications software)* . . 89.
Smartmodem 1200 or 2400 . . . . . call
Smartmodem 1200 or 2400 package . . . . call

IOMEGA ... 90 days
Bernoulli Box *(dual 10 MB w/SCSI)* . . . . . 1695.
Bernoulli Box *(dual 20 MB w/SCSI)* . . . . 1995.
Bernoulli Box *(dual 10 MB, Appletalk)* . . . 2195.

Kensington ... 1 year
Appletalk Cable Clips or Connectors . . *each* 1.
Travelling Disk Case . . . . . $6.
Mouseway *(mouse tracking pad)* . . . . . 8.
Mouse Pocket *(for your idle mouse)* . . . . . 8.
Mac Plus System Saver Cover . . . . . 9.
Imagewriter (II) Dust Cover . . . . . 9.
Mouse Cleaning Kit w/Mouse Pocket . . . . . 17.
Disk Case *(holds 36 Mac disks)* . . . . . 19.
Disk Drive Cleaning Kit . . . . . 20.
Tilt/Swivel . . . . . 22.
Universal Copy Stand . . . . . 24.
Polarizing Filter . . . . . 34.
Surge Suppressor . . . . . 35.
A-B Box *(for the Mac Plus)* . . . . . 65.
Control Center . . . . . 65.
System Saver Mac *(complete with fan)* . . . . 65.

Koala Technologies ... 90 days
KAT Graphics Tablet . . . . . 139.
MacVision *(digitizer)* . . . . . 175.

Kraft ... 1 year
3 Button QuickStick . . . . . 49.

Mirror Technologies ... 1 year
FastPort *("SCSI" for your 512k Mac)* . . . . 139.
MagNet 20x *(w/MacServe)* . . . . . 849.
Magnum 20 Tape Backup . . . . . 929.
MagNet 30x *(w/MacServe)* . . . . . 995.
MagNet 40/40 *(40MB, 40MB tape)* . . . . 2695.

Personal Computer Peripherals ... 1 year
MacBottom Hard Disk 20MB *(SCSI)* . . . . 879.

Summagraphics ... 90 days
MacTablet 6" x 9" *(stylus driven)* . . . . . 299.
MacTablet 12" x 12" *(sketching)* . . . . . 399.

Systems Control ... 2 years
MacGard *(surge protection)* . . . . . 55.

Thunderware ... 90 days
Thunderscan *(high-resolution digitizer)* . . 175.
Power Port . . . . . 29.

Western Automation ... 1 year
DASCH RAMdisk 1000k . . . . . 349.
DASCH RAMdisk 2000k . . . . . 399.

DISKS

Single-sided Diskettes
Sony 3½" Disks *(box of 10)* . . . . . 15.
MAXELL 3½" Disks *(box of 10)* . . . . . 15.
Fuji 3½" Disks *(box of 10)* . . . . . 15.
Verbatim 3½" Disks *(box of 10)* . . . . . 16.
3M 3½" Disks *(box of 10)* . . . . . 18.

Double-sided Diskettes
Sony 3½" Disks *(box of 10)* . . . . . 23.
MAXELL 3½" Disks *(box of 10)* . . . . . 23.
Verbatim 3½" Disks *(box of 10)* . . . . . 24.
Fuji 3½" Disks *(box of 10)* . . . . . 24.
3M 3½" Disks *(box of 10)* . . . . . 25.

INFORMATION SERVICES

Compuserve
Compuserve Information Service . . . . . 24.

Dow Jones
Dow Jones News/Retrieval Membership Kit 24.

Source Telecomputing
The Source *(subscription & manual)* . . . . . 30.

ACCESSORIES

Automation Facilities
Floppiclene Drive Care Kit . . . . . 15.
Floppiclene Refill *(ten cleaning disks)* . . . . . 10.
MacPak Complete Care System . . . . . $29.

Clean Image Ribbon Co.
Clean Image Ribbon Kit . . . . . 12.

Computer Coverup
External Disk Drive Cover . . . . . 4.
Imagewriter (II) Cover . . . . . 8.
Mac (Plus) & Keyboard *(two covers)* . . . . . 10.

Diversions
Underware Ribbon *(iron-on black transfer)* . . 9.
Multi-color Transfer Ribbon . . . . . 19.
ColorPack *(includes Colorpens)* . . . . . 19.

Environmental Software Company
Imagewriter II Cover . . . . . 11.
Mac (Plus) & Keyboard Cover . . . . . 15.

I/O Design
Imageware II *(Imagewriter II carry case)* . . . 59.
Macinware Plus *(Mac Plus carry case)* . . . . 69.

Innovative Concepts
Flip & File Micro *(holds 25 disks)* . . . . . 9.
Flip & File *(holds 40 disks)* . . . . . 18.

Innovative Technologies
The Pocket Pak *(holds 6 disks)* . . . . . 10.
The Easel *(holds 20 disks)* . . . . . 15.
The Disk Directory *(holds 32 disks)* . . . . . 18.
The Library *(carousel, holds 80 disks)* . . . . 29.

Kalmar Designs
Teakwood Roll-top Case *(holds 45 disks)* . . 15.
Teakwood Roll-top Case *(holds 90 disks)* . . 22.

Magnum
Mouse Mover *(let your mouse ride!)* . . . . . 14.

Moustrak
Moustrak Pad *(standard 7" x 9")* . . . . . 8.
Moustrak Pad *(large 9" x 11")* . . . . . 9.

Ribbons Unlimited
Imagewriter Black or Color Ribbons. . . . . 5.
Imagewriter Ribbons Six Pack . . . . . 25.
Imagewriter Rainbow Six Pack. . . . . 25.

Smith & Bellows
Mahogany Disk Case *(holds 90 disks)* . . . . 28.
Mac Plus Pack *(covers & disk case)* . . . . . 39.

OUR POLICY

- We accept VISA and MASTERCARD.
- No surcharge added for credit card orders.
- Your card is not charged until we ship.
- If we must ship a partial order, we never charge freight on the shipment(s) that complete the order.
- No sales tax.
- All U.S. shipments insured; no additional charge.
- APO/FPO orders usually shipped 1st Class Mail.
- Allow 1 week for personal and company checks to clear.
- UPS Next-Day-Air available.
- COD max. $1000. Cash or certified check.
- 120 day limited warranty on all products.*
- To order, call us anytime Monday thru Friday 9:00 to 9:00, or Saturday 9:00 to 5:30. You can call our business offices at 603/446-7711 Monday through Friday 9:00 to 5:30.

SHIPPING

Note: Accounts on net terms pay actual shipping. **Continental US:** For printers and drives add 2% for UPS ground shipping (call for UPS Blue or UPS Next-Day-Air). For all other items, add $2 per order to cover UPS shipping. We will automatically use UPS 2nd-Day-Air at no extra charge if you are more than 2 days from us by UPS ground. **Hawaii:** For printers and drives, actual UPS Blue charge will be added. For all other items, add $2 per order. **Alaska and Outside Continental US:** Call 603/446-7711 for information.

kers beat a path to

Mail Manager Template . . . . . $29.
Personal Finance Template . . . . . 29.
Rubicon Publishing ... CP
Silver Palate Collection *(NY's finest!)*. . . . . 29.
Dinner At Eight *(recipes to wines)* . . . . . 35.
Dinner At Eight-Silver Palate Bundle . . . . . 59.
Satori ... NCP
BulkMailer *(mailing lists)* . . . . . 75.
BulkMailer Plus *(up to 90,000 names)* . . . 225.
Legal Billing *(attorneys to accountants)* . . 439.
Project Billing *(architects to engineers)* . . . 519.
Silicon Beach Software ... NCP
Accessory Pak 1 *(useful utilities)*. . . . . 21.
Silicon Press *(printer utility, 512k)* . . . . . 42.
SuperPaint *(advanced graphics program)* 59.
Simon & Schuster ... NCP
Mac Art Department *(req. Paint program)* 24.
Paper Airplane Construction Kit. . . . . 24.
Typing Tutor III *(learn to type!)*. . . . . 35.
SoftStyle ... NCP
Colormate Art *(Colormate images)*. . . . . 29.
Colormate *(color printing utility)* . . . . . 49.
Laserstart *(Hewlett-Packard Laserjet)* . . . . . 59.
Decision Map *(make better decisions, CP)*. 85.
Software Discoveries ... NCP
Record Holder *(data manager)* . . . . . 45.
Software Ventures ... NCP
Microphone *(communications)* . . . . . 65.
Solutions, Inc. ... NCP
Glue *(creates "print to disk" capability)* . . . 45.
Springboard
Art a la Mac Vol. 1-People & Places *(NCP)* 23.
Art a la Mac Vol. 2-Variety Pack *(NCP)* . . . . 23.
Easy as ABC *(ages 3-6, letters, CP)* . . . . . 29.
Early Games *(ages 2-6, counting, CP)* . . . . 29.
State of the Art ... CP
Electric Checkbook *(print checks)* . . . . . 29.
Survivor Software ... NCP
MacMoney *(financial planner)* . . . . . 49.
Symmetry ... NCP
Acta *(outline/writing desk accessory)* . . . . . 39.
PictureBase *(clip art manager, 512k)* . . . . . 45.
T/Maker ... NCP
ClickArt Personal Graphics . . . . . 29.
ClickArt Effects . . . . . 29.
ClickArt Publications. . . . . 29.
ClickArt Letters Vol. 1 or Vol. 2 . . . . . 29.
ClickArt Holidays *(Valentine's Day, Easter)* . . 29.
ClickArt Business Image. . . . . 29.
Bombay, Plymouth, or Seville Laser font . . . 59.
Write Now *(word processor)*. . . . . 119.
Target Software ... NCP
Merriam Webster's Thesaurus . . . . . 29.
MacLightning *(interactive spell checker)* . . 53.
Medical or Legal Dictionary. . . . . 53.
Voila! *(desk accessory outliner)* . . . . . 53.

MacConnection Special of the Month
through March 31, 1987

GREENE, JOHNSON
Spellswell
Effective and easy to use spelling checker. Checks capitalizations, hyphenations, homonyms and duplicate words like "the the." Includes 93,000 word user modifiable dictionary.

- Powerful stand-alone program
- Not copy-protected
- Requires 512k Mac

Spellswell 1.3 . . . . . $49.

Telos Software ... CP
Business Filevision *(512k, external drive)* 199.
Think Educational ... CP
MacEdge II *(math & reading)*. . . . . 28.
Mind Over Mac *(5 challenging games)* . . . 28.
Think Technologies ... NCP
Lightspeed Pascal *(includes debugger)*. . . 89.
Lightspeed C *(top-rated C Compiler)* . . . . 129.
TML Systems ... NCP
TML Source Code Library . . . . . 59.
TML Pascal *(compiler, req. 512k)* . . . . . 69.
TrueBasic ... NCP
True BASIC *(fast, flexible & portable)* . . . . . 89.
Algebra II, Pre-calculus, Calculus,
Trigonometry, 3D Graphics, Discrete Math,
Probability & Chippendale utilities . . . .*each* 36.
TrueSTAT *(statistics)* . . . . . 59.
Runtime *(create stand-alone applications)* . 59.
Unicorn ... CP
Animal Kingdom *(ages 6-12)* . . . . . 29.
Decimal Dungeon *(math, ages 9 and up)*. . 29.
Fraction Action *(arcade style math game)* 29.
Mac Robots *(pre-school program)* . . . . . 29.
Math Wizard *(math games, ages 5-10)*. . . . 29.
Read-A-Rama *(reading, ages 5-8)* . . . . . 35.
William & Macias ... NCP
myDiskLabeler *(design & print labels)* . . . . 25.
myDiskLabeler w/Color *(req. Imagewriter II)*. 34.
myDiskLabeler w/Laserwriter option . . . . . 39.

GAMES

Accolade ... CP
Hardball *(baseball simulation)* . . . . . 27.
Activision ... CP
Mind Shadow *(Who am I?)*. . . . . 27.
Hacker *(you're on your own!)*. . . . . 27.
Hacker II *(breach Russian computer)*. . . . . 30.
Borrowed Time *(murder mystery)*. . . . . $27.
Shanghai *(Mah Jongg strategy)*. . . . . 27.
Alter Ego *(male or female version)* . . . . . 36.
Addison-Wesley ... CP
Puppy Love *(your dog will love it!* . . . . . 15.
Ann Arbor Softworks ... CP
Grid Wars *(3D graphic arcade)* . . . . . 22.
Artworx ... CP
Bridge 4.0 *(sharpen your skills)* . . . . . 21.
Avalon Hill ... CP
MacPro Football *(req. 512k)*. . . . . 32.
Blue Chip ... CP
Millionaire *(stock market)* . . . . . 35.
Tycoon *(commodities)* . . . . . 35.
Baron *(real estate)* . . . . . 35.
Squire *(personal finance, req. 512k)*. . . . . 35.
Broderbund Software ... CP
Lode Runner *(over 150 levels)* . . . . . 24.
Ancient Art of War *(military strategy)*. . . . . 27.
Toy Shop *(create working models)* . . . . . 39.
Bullseye ... CP
Ferrari Grand Prix *(Formula One racing)*. . . 35.
Fokker TriPlane Flight Simulator . . . . . 35.
Electronic Arts ... CP
Archon *(arcade strategy, req. 512k)* . . . . . 27.
Skyfox *(3D graphics)* . . . . . 27.
One on One/Dr J vs Larry Bird *(req. 512k)*. . 27.
Patton-vs-Rommel *(req. 512k)* . . . . . 27.
Pinball Construction Set. . . . . 27.
Epyx ... CP
Rogue *(strategy dungeon classic!)*. . . . . 24.
Temple of Apshai *(4 levels)*. . . . . 24.
Winter Games *(Olympic events)*. . . . . 24.
Hayden Software ... CP
Perplexx *(scrabble-type game)* . . . . . 24.
Sargon III *(9 levels of chess)*. . . . . 29.
Infinity Software ... CP
Grand Slam *(tennis, req. 512k)*. . . . . 28.
Infocom ... CP
Leather Goddesses of Phobos, Moonmist,
Ballyhoo, Cutthroats, Hitchhiker's Guide,
Planetfall, Wishbringer, Enchanter, Trinity,
Zork 1, The Witness *(standard)* . . . . . *each* 24.
Zork II, Zork III, Sorcerer, Suspect,
Mind Forever Voyaging *(advanced)* *each* 26.
Spellbreaker *(expert)* . . . . . 29.
Invisiclues *(hint booklets)*. . . . . *each* 6.
MacroMind ... NCP
Maze Wars+ *(play via modem or network)* 32.
Miles Computing ... CP
Fusillade *(arcade maze)*. . . . . 21.
MacAttack *(3D tank simulation)* . . . . . 27.
Harrier Strike Mission *(3D flight simulation)* 27.
MacWars *(3D space simulation)*. . . . . 27.
Mindscape ... CP
Rambo: First Blood Part II . . . . . 24.

1-800/Mac&Lisa 680C

MacConnection™

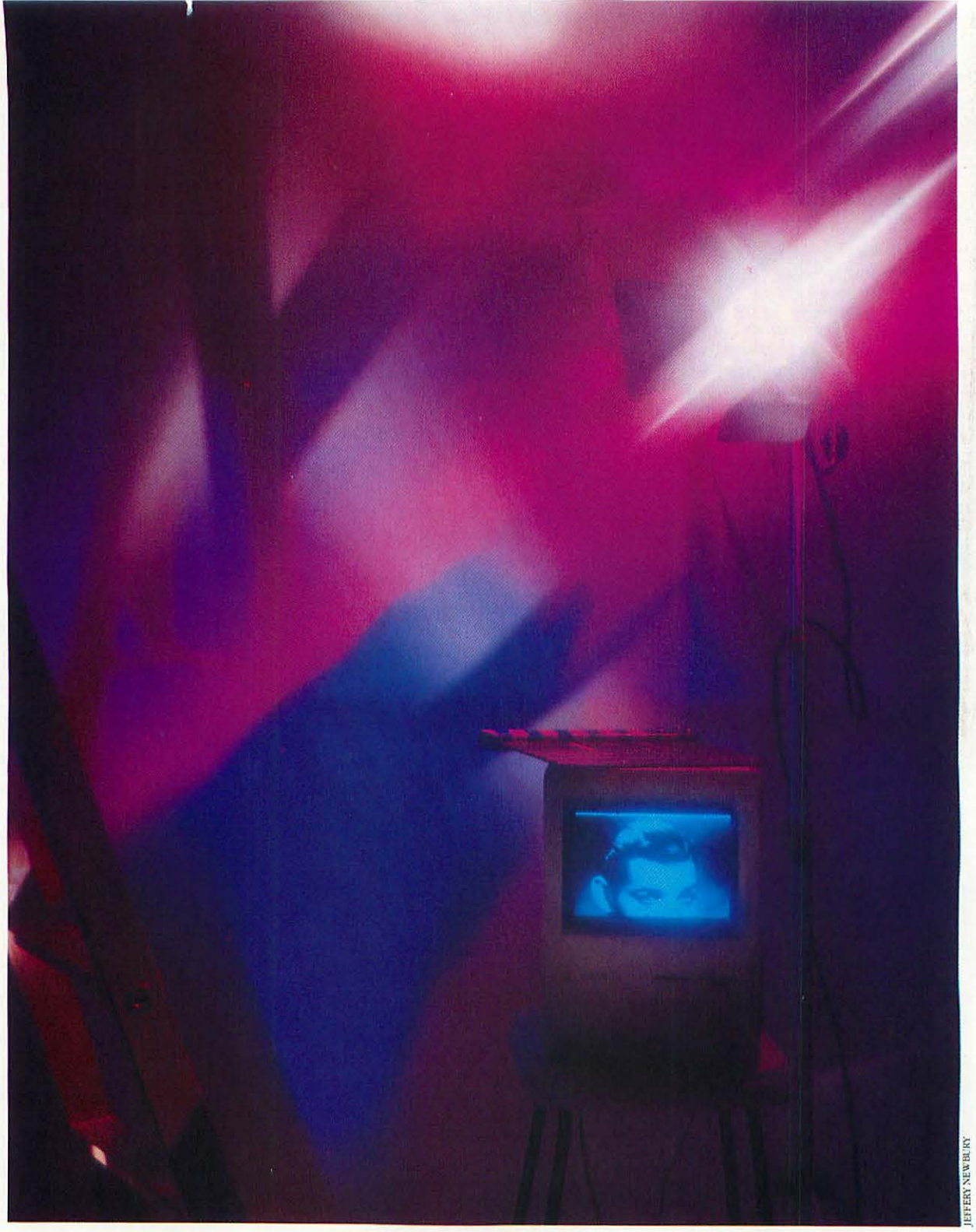
MEMBER DIRECT MARKETING ASSOCIATION

MacConnection, 14 Mill Street, Marlow, NH 03456 800/622-5472 603/446-7711

©Copyright 1986 PC Connection, Inc. MacConnection is a division of PC Connection, Inc. MacConnection is a trademark of PC Connection, Inc.

All items subject to availability. Prices subject to change without notice.

*Defective software replaced immediately. Defective hardware replaced or repaired at our discretion. Some items have warranties up to five years.



JEFFERY NEWBURY

Moving Pictures

by Erfert Nielson

Beck-Tech's MacMovies lets you animate with ease

When French film pioneer Georges Méliès created special effects with stop-frame animation in 1900, audiences were filled with wonder. Actors disappeared and then magically reappeared elsewhere on the screen; people and objects were propelled through space—and no one knew how it was done. It's harder to impress today's technologically jaded audiences, but there is still something magical about watching animation on the Mac's screen. Recently I saw a short piece of animation that caught my eye: a scene from "Miami Vice" was running on the Mac, as if the Mac were hooked up to a TV. I assumed that the segment must have been recorded with a complex combination of animation software and hardware. I was wrong; the scene was produced with *MacMovies,* an animation program recently released by Beck-Tech.

MacMovies is a simple application that puts Macintosh movie-making into the hands of anyone familiar with *MacPaint.* Basically, *MacMovies* combines a series of *MacPaint* documents into an animated movie, treating each document as a single frame. The documents can originate in *MacPaint* or they can be saved as *MacPaint* files from other graphics programs, including 3-D graphics applications, object-oriented drawing programs such as *MacDraw,* or PostScript graphics programs such as *Cricket Draw* and *Illustrator.* Although simple, *MacMovies* has the potential to reward ambitious animators with impressive results. The "Miami Vice" scene, for example, was recorded from a VCR with the help of a MacVision video digitizer.

Use *MacMovies* to liven up a business presentation, to produce a self-running product demo, or simply to create movies for your own amusement. In the hands of professional animators, *MacMovies* could be used for animating storyboards, depicting a logo in motion, animating a pie chart or an idea for a TV commercial. The ability to capture full frames from video sources could conceivably allow the Macintosh to emulate sophisticated animation systems that cost tens of thousands of dollars.

The program does more than just string *MacPaint* files together. *MacMovies* records only the differences between one frame and the next, compressing the data and allowing the movie to occupy less disk space than the original *MacPaint* images. In addition, the program lets you vary a movie's playback speed, run it forward or backward, stop the action, or chain several animations together into a longer presentation. A *MacMovies* animation can be as long as disk space permits.

Anatomy of an Animator

The *MacMovies* program consists of four modules: Preview, FMComp, Projector, and MacMovies (see Figure 1). The modules themselves are small, occupying from 3K to 5K of memory apiece, but you'll need a System file and *MacPaint* or a similar program to create the graphics for your movies. It's possible to create and run movies on a 512K Mac, but long movies may require more memory for playback. And while you can run *MacMovies* on a single-drive system, the manufacturer recommends a second disk drive or a hard disk. (None of the modules are copy protected, making for easy installation on a hard disk.)

Like any good movie director, you'll want to preview your raw footage and edit it before printing the final cut. Once you've created a series of graphic images, you should look at them with the Preview module. Preview sequentially displays each frame of an animation-to-be, allowing you to see that frames are in the proper order, make sure the transitions from frame to frame are smooth, and return to *MacPaint* to make adjustments if necessary.

When you're satisfied with the appearance of each frame, it's time to compile them into a movie with FMComp. In FMComp you set a movie's default speed and specify whether the movie will switch directions when played, automatically reversing from the last frame back to the first. The program asks you to give your movie a title and to select the first *MacPaint* frame in the series to record. FMComp then creates a movie, reading one frame after another and compressing the data. The degree to which FMComp compresses graphics files varies, depending on the complexity of an image and how much an image changes from one frame to another; one sample animation I created compressed the original *MacPaint* files from 102K to 46K, while another went from

58K to 36K. When FMComp is through, the finished movie appears in the form of a film-reel icon.

MacMovies provides two ways to play back animations. Projector plays a single movie at the speed and direction set in FMComp, while the MacMovies module lets you string together several movies, offering such options as the number of times each animation repeats, the speed at which each is played, and whether or not a movie switches direction. (Unfortunately, both modules are represented by identical projector icons, which could prove confusing to beginning moviemakers.) When a movie is running, both Projector and MacMovies allow you to vary the playback speed by pressing the Mac's number keys. The keys increase animation speed in increments of 1/30 second: the 1 key displays each frame for 1/30 second (for an animation speed of 30 frames per second), while the 9 key displays each frame for 9/10 second. You can also use the space bar or the mouse button to single-step through an animation.

To the Drawing Board

Using *MacMovies* to compile and play back an animation is easy enough; the tricky part is creating the *MacPaint* documents that are the raw material of a movie. Although *MacMovies* reads *MacPaint* files, you'll be better off generating artwork in a program such as Ann Arbor Softworks' *FullPaint* or Silicon Beach Software's *SuperPaint,* both of which can save files as *MacPaint* documents. These two graphics programs are superior to *MacPaint* for a number of reasons. Most importantly, they allow you to use the entire screen as a drawing area. (*MacPaint* confines you to a small area called the drawing window.) This full-screen drawing capability is important to *MacMovies* animators, since the program makes use of the entire Mac screen. In addition, *FullPaint* and *SuperPaint* provide tools that let you slant, distort, or rotate a selected area; these options can be a valuable aid to animators. (If you already own *MacPaint,* you can purchase T/Maker Graphics' *ClickArt Effects,* an add-on package that provides these graphics editing tools.) Adobe Systems' *Illustrator* lets you trace images from a scanner or video digitizer and treat them with PostScript special effects.

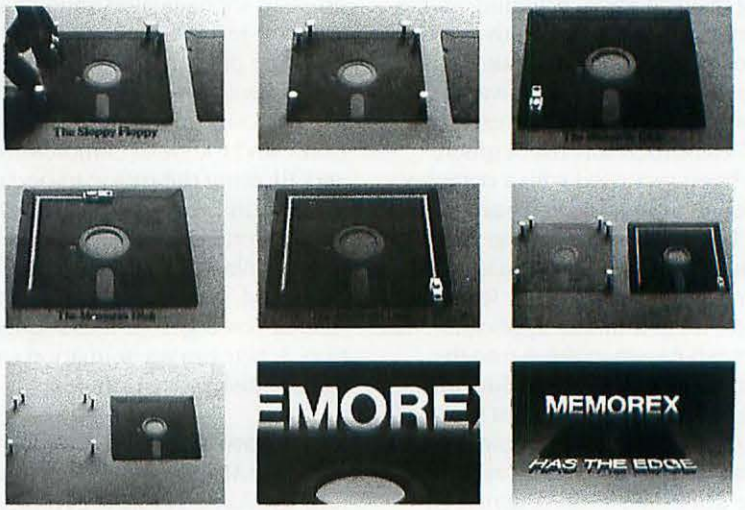
Once you've drawn the first frame of an animation, you're faced with a new challenge: how do you smoothly blend the current image with the next frame of the

Short Stories

A traditional storyboard is a series of sketches showing the major events in a TV or movie scene. Animated storyboards are similar, roughing out a scene's basic action in the form of a "pencil test," or animated sketch, which can be used to preview the sequence. *MacMovies* provides an inexpensive means of creating and evaluating animated sequences. Rather than having to sketch each frame, with *MacMovies* you can produce animation by manipulating objects in a 3-D graphics program or by using a video digitizer to take pictures of a model or record images from a VCR or optical disk player. Because the images are recorded as *MacPaint* documents, they are easy to edit. The program's ability to stop the action and show a sequence frame-by-frame comes in handy when you're viewing an animation and deciding which portions to edit.

MacMovies can also function as a quick-and-dirty film editing lab. For example, you can add titles or create scrolling credits for a presentation. In addition, you can use *MacPaint* or 3-D graphics software to create special effects: zoom in on an object, tumble it across the screen, or even make it explode. You can also move or delete blocks of an animation simply by rearranging *MacPaint* documents, instead of having to cut and splice segments of film.

This storyboard shows highlights from a TV commercial for Memorex floppy disks, produced by the DDB Needham Worldwide ad agency of San Francisco. The sequence was captured from a VCR by means of a MacVision video digitizer. (This particular ad was not produced with the aid of *MacMovies,* but is used here as a storyboard example.) An ad director could look at a storyboard like this one, suggest changes, and view the changes before shooting the actual commercial.



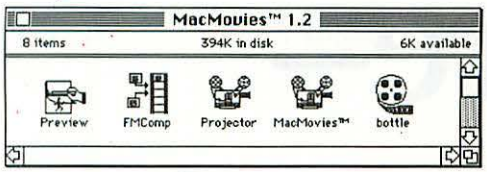


Figure 1
MacMovies' *four modules let you preview a series of* MacPaint *documents, compress the graphics and chain the documents together into a movie, view a single movie, or view a series of movies. Finished movies are represented by a film-reel icon.*

movie? Unlike Spinnaker Software's *VideoWorks,* a Macintosh animation program that works with individual animated elements called *sprites* (see "A Moving Pixel Show," *Macworld,* November 1985), *MacMovies* deals with entire frames–characters, objects, background, and all. It's up to the animator to come up with a method of altering an image over a series of frames. The simplest technique is to draw the first frame, then select Save and name the document (Frame01, for example). Next, alter the drawing slightly, choose Save As, and name the second picture Frame02. Repeat this procedure until you have a series of *MacPaint* documents that can be chained together to produce an animated sequence.

Transitional Techniques

Before the days of computers, animators drew *cels,* or animation elements, on transparent sheets of celluloid. That way, the artist could place one sheet on top of another and modify an image in relation to the previous one. *MacPaint* doesn't provide such a feature, so *MacMovies* makers are forced to improvise. One effective (if less than elegant) method is to draw an image with *MacPaint* or another graphics program, save the drawing, then trace the image on the screen with a felt-tip pen. Draw the next image with the graphics program, select Save As and trace it in turn, and so on. Primitive, but it works.

A more sophisticated method involves using *SuperPaint*'s two layers in a similar fashion. *SuperPaint* is made up of two subprograms, each of which occupies a "layer" on the screen (see *Reviews, Macworld,* November 1986). To create documents to be animated, draw an object in the Paint layer and copy it to the Draw layer, thereby setting up two overlapping, transparent images. Then select the object in the Paint layer and move or distort it; the original object shows through underneath, allowing you to measure the change precisely from one frame to the next. To make sure that the object in the Draw layer won't show up when you save the document, enter the Draw layer and place a white rectangle over the object. Save the document in *MacPaint* format and repeat the procedure as often as necessary. Complicated, but elegant. (By the way, both *SuperPaint* and *FullPaint* let you move selected areas in increments of one pixel, allowing great precision in moving an area smoothly from one frame to the next.)

3-D Movies and TV Revisited

To fully automate not only the movement of an object but the lighting of a scene as well, use *Easy3D,* Enabling Technologies' three-dimensional graphics program. With *Easy3D,* you can shrink, enlarge, or rotate an object by a specified amount, make the scene lighter or darker, and save the results as a *MacPaint* file (see Figure 2). The frames can be further modified in *MacPaint* if you wish. This is a foolproof way to create smooth, precisely controlled animations.

The most involved, but perhaps the most rewarding *MacMovies* animation technique involves using a video digitizer such as MacVision to capture images from a VCR that has a freeze-frame option. Connect the digitizer to the VCR and the Mac, scan an image, save the file, record the next frame, and so on. Not all VCRs have good enough freeze-frame capabilities for this task, so be prepared to experiment. This method also works with some optical disk players.

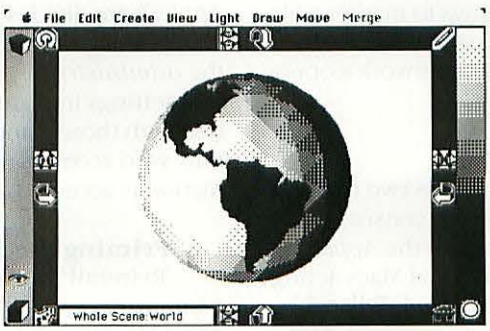


Figure 2
Easy3D *can be an efficient animation tool. Move a 3-D object by degrees and save your changes as a series of* MacPaint *documents. The program also lets you adjust lighting and select a background shade.*

Cut . . .

Although ease of use is certainly one of *MacMovies'* main selling points, the program's simplicity can be a hindrance as well. For certain types of animation, a frame-by-frame treatment is cumbersome compared to the object-oriented approach of sprites. If an element is in the wrong position on the screen, for example, editing dozens of *MacPaint* screens to correct the problem can be tedious, especially if the element moves across a background. *MacMovies* is well suited for animations made up of full-screen images; data compression and smooth playback make it a good choice for this type of presentation.

On the other hand, many people will appreciate *MacMovies'* automation of the animation process. *VideoWorks,* with its built-in graphics program, multiple sprites, and sound capabilities, is appropriate for some animation applications. But while *VideoWorks* is more sophisticated than *MacMovies,* it is also more difficult to learn and use. It's up to you to decide which approach better suits your needs.

MacMovies is a likable application. It's simple, it's not copy protected, and at $99, it's affordable. *MacMovies* animations run smoothly, and with impressive speed. Like all programs, this one has its quirks (for example, you must duplicate the first frame of a movie and install it as the last frame *unless* the movie's direction will be reversed), but a thorough reading of the manual and a few experiments should set you right. The manual could be better organized, but it's adequate.

In some ways, *MacMovies* animation is reminiscent of the early days of cinema. The screen displays black-and-white images (Méliès hand-tinted his films; perhaps Apple will provide a workable alternative), transitions from scene to scene are accompanied by a title screen, and the soundtrack must be provided by an external source. But as the early cinema did, *MacMovies* represents a new approach to communication. The key contributions of creative individuals have allowed the motion picture industry to evolve rapidly; the same is bound to happen with Macintosh animation. Think of yourself as a pioneer in the field. □

See *Where to Buy* for product details.

AppleShare—Multifaceted Networking

Apple's file server redefines the language of network communications and paves the way for a new generation of products

by David Ushijima

Few of us work in isolation. Although we may envy artists and craftspeople who forge their works in remote studios or writers who construct their stories at seaside retreats, most of us work and share information with others in an office. Phone calls, memos, and meetings comprise a daily ritual that is vital to the success of most businesses. But despite the much-heralded arrival of computer networks, few such products to date have actually enhanced communication between people.

With the introduction of *AppleShare,* software that lets Macintosh users on an AppleTalk network share and exchange files, Apple brings to market a file server that is both extremely transparent and rich in features, so a work group can tailor a network's operation to its own unique work style.

The Information Web

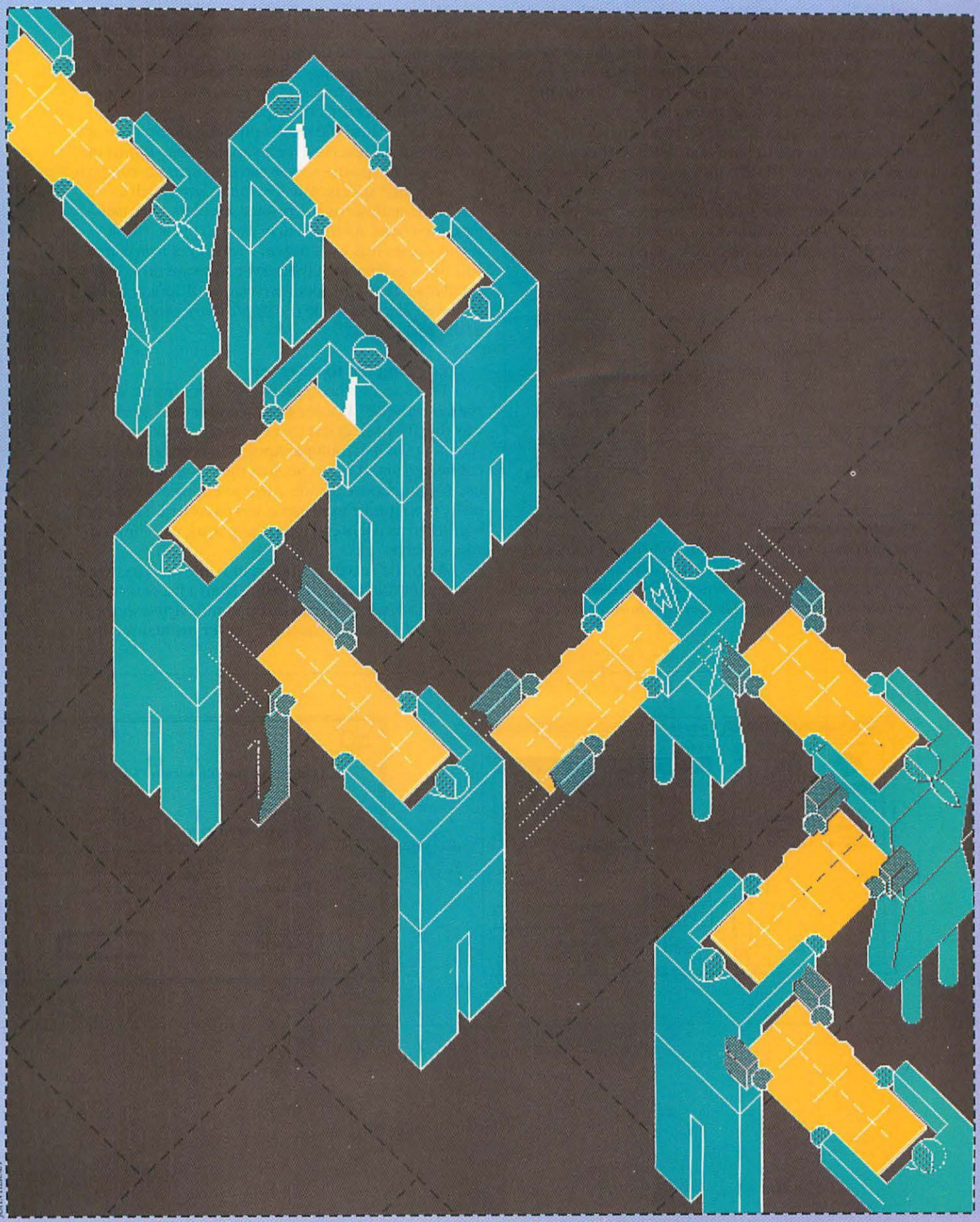
An *AppleShare* installation contains two types of machines: an *AppleShare* server, which consists of a dedicated Mac with a hard disk running the *AppleShare* server software; and the individual Macs acting as workstations, all connected to the AppleTalk cable. (IBM PCs equipped with AppleTalk boards from either Apple or Tangent Technologies can also act as workstations when combined with Tangent Technologies' recently announced software.) The server (or servers—there may be more than one on a single network) acts as the focal point for the storage of shared or private information (see "The Network Mapped").

Users access the *AppleShare* server much as they would a locally attached hard disk, with one important difference. Unlike a local disk, whose documents and applications (hereafter called *files*) are accessible only to the owner of that disk, an *AppleShare* server stores files that are accessible to other network users as well. The degree to which other users can access an individual's files depends on the rights, called *access privileges,* the individual assigns to a folder or file.

One feature that elevates *AppleShare* above other network products is its unique method of allowing shared access to the information stored on the server. *AppleShare* divides the responsibility for assigning access privileges between the network manager, dubbed the *administrator,* and all the other network users. The settings imposed by the administrator, in conjunction with those imposed by the users, delineate not only who accesses information but also how the information is accessed.

Priming the Network Engine

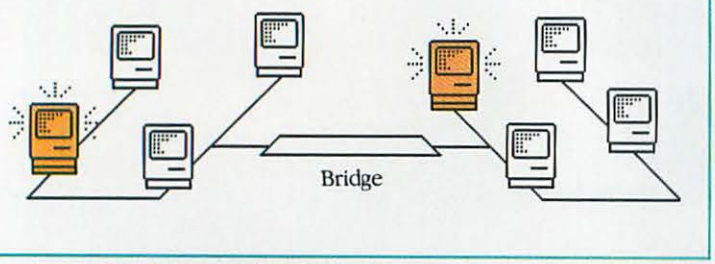
To install *AppleShare* on a network, the network administrator installs the server software on a dedicated Macintosh Plus with an attached hard-disk drive. While the server software requires a megabyte of memory and the 128K ROM, the workstation software



JOHN HERSEY

will run on a 512K, 512K Enhanced, or Mac Plus. Each network user must run the Workstation Installer, which updates the user's System file and Finder to versions 3.2 and 5.4, respectively. The installation software also adds a new Chooser (version 3.0) and the Access Privileges desk accessory.

The *AppleShare* server software transforms a Macintosh Plus with a hard disk drive (either a SCSI drive or an Apple HD-20) into a dedicated file server. The primary objection to *AppleShare* may come from those who can't afford to dedicate a machine as the server. Once the administrator installs the server software, the Mac and the hard disk cannot be used as a workstation.



The Network Mapped
The AppleShare *server (highlighted), a dedicated Mac with one or more hard disks, is accessible to any user on the network. Users on different AppleTalk networks can access each other's network server if a bridge, like the Hayes InterBridge, connects the two nets.*

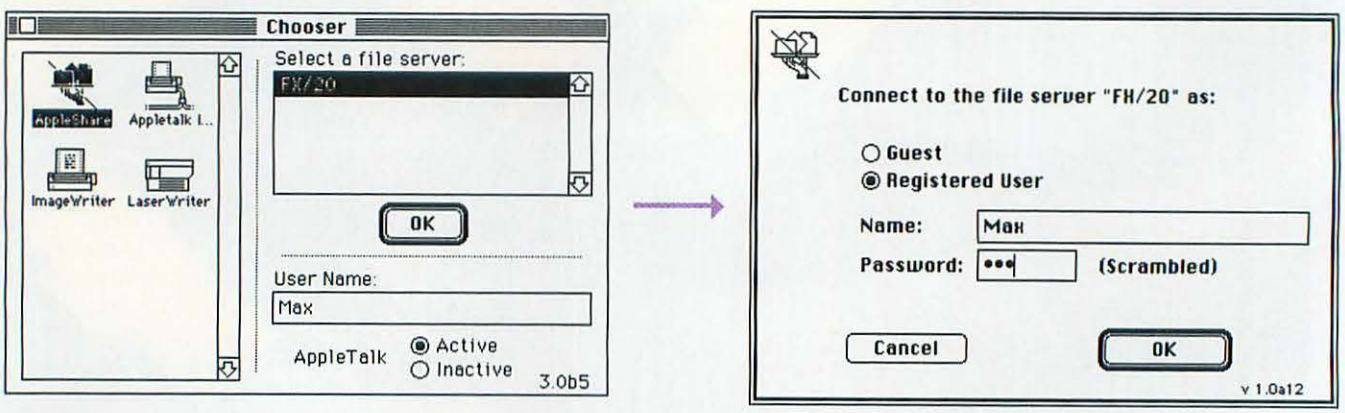
However, while you lose the use of one Mac, you gain a high-performance network engine that efficiently manages the information stored on the hard disk. The server manages a database of users and files, responds to users' requests for files, and otherwise maintains the server's disk space.

Also, because the server program doesn't use any of the memory reserved for an application—it runs in the System heap—the server can concurrently run programs written specifically for *AppleShare,* such as electronic-mail software, printer spoolers, and database programs. As this article went to press, Think Technologies was working on a version of *InBox* that will run together with the server software on a dedicated Mac. The coresident software will appear as the active application while the *AppleShare* program runs in the background.

Logging On to a Server

Users access the *AppleShare* server from a workstation with the Chooser desk accessory in the same way that they select the LaserWriter for printing (see "Logging On"). If multiple AppleTalk networks are connected via a bridge, such as the Hayes Interbridge, users must choose a zone. After selecting a server, log on by typing your user name and password. Those not registered as users can log on as guests, with limited access rights.

After the server verifies your name and password, you mount volumes by choosing from a list of volume names. Each user can mount up to nine *AppleShare* volumes at a time. Because the server maintains a list



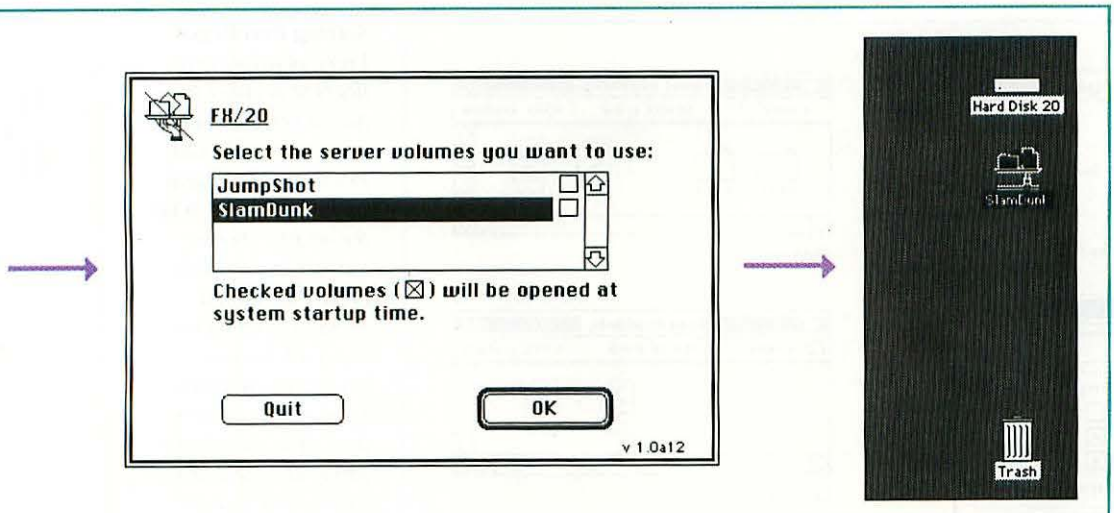
A Network in Transition

From the time Apple first introduced AppleTalk, the company has proclaimed Macintosh networks as the communication solution for work groups. To the dismay of AppleTalk advocates, little has been forthcoming from Apple beyond the cabling scheme and a path to the LaserWriter. Although Apple did not announce network products in 1986, it shipped over 200,000 connector kits, though many of these simply connected Macs to LaserWriters. But while network products from Apple were slow in coming, the network-development group was busy finalizing the upper layers of the AppleTalk protocol, which define the electronic ground rules by which network participants can share files.

During Apple's networking hiatus, companies like Infosphere, Centram Systems, Think Technologies, General Computer, and 3Com have driven the network software market by releasing products like *MacServe, TOPS, InBox, HyperNet,* and the 3Server3. Such products have allowed network users to do more than just print to the LaserWriter.

One problem that grew out of Apple's silence in the network arena is that each manufacturer, lacking an official file-sharing protocol from Apple, developed its own rules for letting network participants share files. This meant that application developers who wanted to develop multiuser software had to provide different versions for each of the various network software products. For example, Blyth Software's *Omnis 3 Plus* database comes in several versions; the one you choose depends on the network software you're running. Odesta sidestepped this issue by providing its own network file system in addition to its *MultiUser Helix* database.

The onus to provide a network-filing protocol standard was on Apple. With the arrival of *AppleShare,* and especially with the finalized AppleTalk Filing Protocol, manufacturers of network software can now resolve the confusion in the network applications market.



Logging On
Select the AppleShare *server you want with the Chooser. Once you type your name and password, the volume you select appears on the desktop just like a local floppy or hard disk. Each server can have up to seven SCSI drives and two disk-port drives attached; in this example, the server FX/20 has two volumes: JumpShot and SlamDunk. If you want the volume mounted automatically when you start the Mac, check the box next to the volume name.*

of users and their associated privileges, you can only mount those volumes to which you have access.

Once mounted, a server volume appears on the user's desktop just as a local floppy disk or hard disk volume would. You can directly open, save, or print documents from an application or drag icons from the Finder. Applications run on the server the same as they would on a local disk–copy-protection schemes, like key disks, still function as they were designed to; multiple users cannot run single-user software simultaneously. As with other disk and file servers, the judicious use of server-resident applications improves network performance. In fact, because the *AppleShare* file server was not intended to replace a local disk, Apple recommends that users always run from a System Folder that resides on the local floppy or hard disk.

In most respects, the server volume behaves exactly like a local volume. The only time you'll notice a difference is when you attempt to open or save to a folder for which you don't have the proper access rights.

Granting Access Privileges

Much of *AppleShare*'s power lies in its multifaceted yet transparent approach to file security. *AppleShare* gives the creator, or owner, of a folder or file the right to control how others access, read, modify, or even see it. Owners can assign rights, called *access privileges,* to documents, folders, or entire disks (volumes) that they own. Communication between network members depends on the way individuals set up their access privileges.

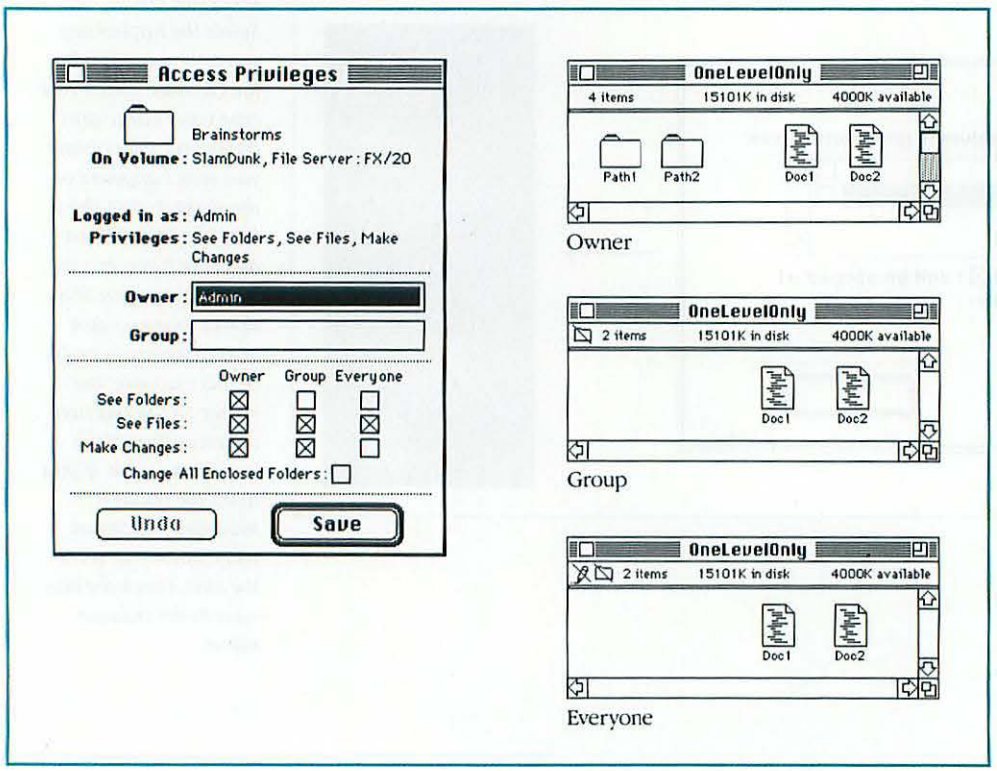
The privileges for all volumes, folders, and files can be viewed or set from the Access Privileges desk accessory or the Get Privileges command in the File menu (see "Setting Privileges"). The owner alone can change the privileges; others can only view their rights.

An owner can grant three types of privileges:

- See Folders–lets other users see folders but not the files contained within a particular folder.
- See Files–lets others see, open, and copy, but not modify, the files within a designated folder.
- Make Changes–lets others modify the files as well as add or delete files from a folder.

Owners assign these privileges to themselves, other members of a group, or everyone, including nonregistered users.

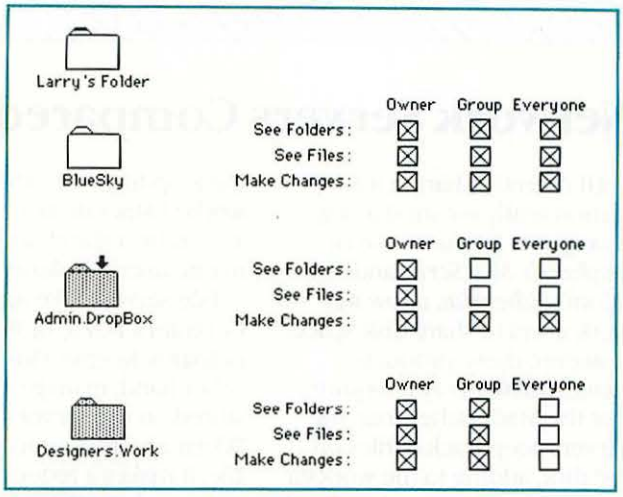
By selectively granting access, network users set up folders that guarantee individual privacy while allowing group members to share files. While the permutations are numerous, a few folder types define the key elements of an *AppleShare* system (see "Access Building Blocks"). For example, in addition to creating a private folder that no one else can open, a user can create a group work-folder that allows only group members to see, open, and modify folders and files. When two or more group members vie for the same document from a shared work-folder, only the first person who opens the document has access to it; the others are locked out. Alternatively, if users are not granted the right to change the folder's contents, many users can be looking at the same document simultaneously.



Setting Privileges
Users set access privileges with either the Access Privileges desk accessory or the Get Privileges command in the File menu. With the settings shown, the owner sees both folders and documents; group members can see and change documents, but can't see folders; and those outside the group can neither see folders nor change documents.

To control who sees a folder's contents, you can create two special types of folders: the drop box and the bulletin board. The drop box works something like a corner mailbox, by allowing users to add files to a folder without letting them see files it currently contains. Although users can drop off files, only the folder's owner can see or open them. The antithesis of the drop box is the bulletin board, a folder where users can see the contents but not change them. Only those authorized to make changes can post files or messages in the folder.

Controlling who sees files or folders is a powerful way of controlling access to the file server (see "Three Views of a Disk"). After all, you can't change what you can't see. In terms of the Hierarchical File System (HFS), different users see the file structure differently, depending on the access rights they have. If you think of the hierarchy as an inverted tree and the folders as branches, restricting access to a particular branch, or folder, prevents certain users from climbing further down the hierarchy. Therefore, different users may get different views of the same tree.

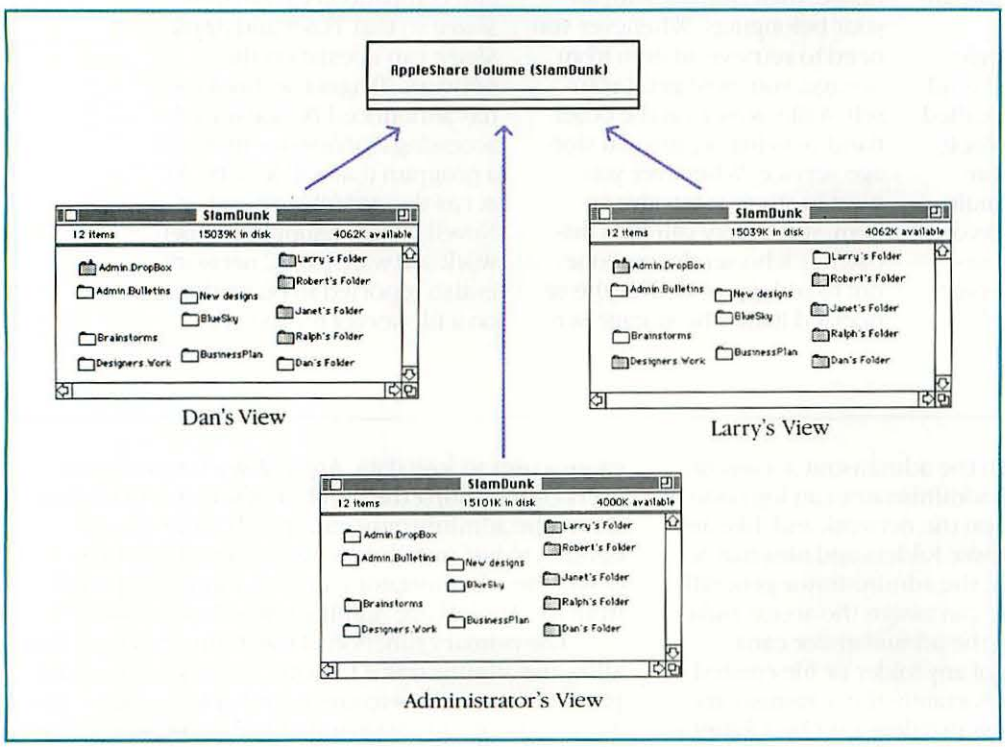


Access Building Blocks

Four common types of folders are shown here. Those you own appear on the desktop with the darkened tab, while those you can open but don't own appear without the darkened tab. Assigning all rights to a folder gives everyone the right to open and change that folder and its contents. Users can put files in drop boxes, but they can't see the folder's contents. Group work-folders let members share files; nonmembers see the gray folder.

Administrating the Network

The network administrator is the person responsible for registering new users, assigning users to groups, and backing up the server information. Most administrative tasks are handled by a program called



Three Views of a Disk

Three users see the same volume differently, depending on each one's access rights. The administrator can open shared and personal folders but cannot open other users' private folders. Similarly, users can only access shared folders and their own personal folders. Note that in this example only the administrator can open the Admin.DropBox folder and that Larry, who is not a member of the designer's group, cannot open the Designers-Work folder.

Network Servers Compared

Until recently, sharing information really meant sharing disk space. Products like Infosphere's *MacServe* and 3Com's *EtherMac* allow network users to share disk space. However, these products, termed *disk servers,* require that the Mac (rather than the server) keep track of files on the disk, adding to the workstation's processing overhead and congesting the network with unnecessary traffic.

Disk servers generally require that the disk be partitioned into separate areas for each user. In order to prevent others from accessing a file, you must make the entire partition private, thereby locking others out. If more than one user will be writing to a file, you must purchase special multiuser software.

In order to mount a single partition, the server must send that partition's directory, called the *volume parameter block,* to the workstation. As more users mount and access multiple partitions, the disk server's performance degrades. Furthermore, because the server doesn't manage the users' Desktop files, the other networked Macs do not immediately reflect the changes made to one user's desktop.

File servers, like *AppleShare,* Centram's *TOPS,* or Reach Technologies' Keeper Plus, on the other hand, manage all the files stored on the server's disk. When a workstation opens a file, it makes a request to the server, which in turn handles the logistics of finding and opening the file; the server then simply sends the requested information to the user. With this method the server can track not only the files open at any one time but also who is working on a particular file.

Using a disk server is like leasing storage space in a warehouse, then filling it with all your belongings. Whenever you need to retrieve an item from storage, you must get it yourself. A file server, on the other hand, acts like a personal storage service. Whenever you want to store or retrieve an item, you simply call up a dispatcher who sends someone out to pick up or deliver the requested item. The storage service handles all the organization, tracking, and delivery.

While disk servers currently hold a prominent share of the network market, as disk-server manufacturers begin producing file-serving software, file servers will become the dominant product. 3Com will release its Macintosh file-server software *3Plus* for the 3Server3 in the first half of 1987. InfoSphere has also been working on a new version of *MacServe,* which would incorporate the AppleTalk Filing Protocol.

New developments in network products will further alter the AppleTalk landscape. Reach Technologies is incorporating the AppleTalk Filing Protocol into a new version of the Keeper. Centram plans to maintain compatibility with *AppleShare* so that *TOPS* and *AppleShare* can coexist on the network. Tangent Technologies has announced PC software for accessing *AppleShare* files and a program that will let a PC AT act as the *AppleShare* server. Novell, a major supplier of network software for PC networks, is also reported to be working on a file server for the Mac.

AppleShare Admin, which the administrator runs on the server machine. The administrator can log on to the server from any Mac on the network and, like any other user, can create private folders and files that no one else can access. Since the administrator generally owns a volume, he or she can assign the access rights to that volume. However, the administrator can't change the access rights of any folder or file created by another user. Most importantly, the administrator cannot override the access privileges set by a folder's owner to see or enter the owner's files.

Before running the Admin program on the server, the administrator must shut down the *AppleShare* server program. Because discontinuing file service can cause a user to lose data, *AppleShare* forewarns all users by indicating the number of minutes until shutdown; the administrator can specify a time from 0 minutes to just over 6 days. Once the server shuts down, the administrator runs the Admin program from the AppleShare Administrator floppy disk.

The primary function of the Admin program is to allow the administrator to enter and delete users and passwords as well as to create and delete groups. The administrator can assign individuals to groups and see a list of users and groups. The Admin program also lets the administrator create two types of volume or server

reports, which list the contents of the server or volume along with ownership information and access privileges.

One feature lacking in the Admin program is a command to back up the server's contents. While you can back up to floppies or another hard disk by dragging folders from the desktop, the lack of an automated or even manual backup command is an annoying weakness in an otherwise well-thought-out design. At press time, reports indicated that at least one company was working on a backup program for the file server.

To Share or Not

AppleShare takes a major step in advancing the state of intraoffice communication. Because Apple didn't assume that all users would use *AppleShare* in the same way—some may use the server as personal storage, others may use it as a shared workspace—a knowledgeable administrator can set up an intraoffice file system that reflects the way people work, rather than one that conflicts with personal work styles.

Setting up the folder hierarchy does require careful planning. In fact, the extensive array of access privileges could be somewhat overwhelming to the network novice. But an administrator who understands how people and groups communicate can use *AppleShare* to create a powerful shared file system.

As mentioned earlier, *AppleShare*'s heaviest criticism will come from those who can't afford to dedicate a Mac as the file server. If the network is used infrequently, it may make sense to purchase a product that lets the Mac act as both server and workstation. However, the performance of a workstation that doubles as a server generally suffers in both categories (see "A Network Divided," *Macworld,* October 1986). Because the version I tested was still in a preliminary stage, I cannot quote performance figures. But, as more people use the server and the network, the performance gains will outweigh the cost of the dedicated hardware and software. Furthermore, because *AppleShare* was written with development software that produces 68020-compatible code, installing the product on a next-generation Mac could boost the network's performance tremendously, a crucial factor for heavily traveled networks.

Perhaps even more significant than the *AppleShare* file server itself are the effects the network system software will have on future applications. For the first time, developers will have a common network file system to which they can link their software to produce powerful network applications. (Monogram's *Business Sense,* a networked accounting package, is one of the first *AppleShare*-compatible products to be announced.) Add to this Apple's implementation of an independent network processor that both off-loads processing from the workstations and coordinates the efforts of network users. All this can only lead to software that will enhance communications between people. □

See *Where to Buy* for product details.

Inside the Network Engine

A critical distinction between an *AppleShare* server and other network servers is the mechanism Apple has devised for allowing multiple users to access a server's files. Key changes to the system software—a new version of the Finder and the implementation of a set of rules, called the AppleTalk Filing Protocol (AFP), by which applications access files over the network—optimize the Mac for network use.

Essentially, the Finder's functions are split between the user's workstation and the server. The server keeps track of what's on each user's desktop, allowing all workstations to instantly reflect changes made to the server's files.

When an application must access a file stored on the server, it calls the Mac's Hierarchical File System (HFS). Recognizing that the file is not stored on a local hard disk, the file system translates the file request into an AFP request. The AFP request is encapsulated in a packet and sent over AppleTalk. When the packet arrives at the file server, the File Server Control Program translates the request into the appropriate file system call for the native hardware (a PC or UNIX host, for example). If the file server is a Mac, it translates the request into an HFS call and the server's file system calls the disk drivers to get the information from the disk.

The Latest Word

by Eric Alderman

A preview of Microsoft's powerful new word processing program

The two years since the initial release of *Microsoft Word* for the Macintosh have been long and frustrating ones for users, who've had nothing more than a minor maintenance release (version 1.05) to keep them happy. However, most of them will forgive and forget when they upgrade to version 3.0. Created from scratch, this release has several new features, an improved user interface, and significantly better performance.

New features such as style sheets, a spelling checker, outlining, hyphenation, and index and table-of-contents generation make the program nearly equivalent to the IBM PC version. *Word* 3.0 also adds some unique features like a two-page preview, a limited ability to place lines and boxes in the text, a math typesetting function for creating complex equations, and the ability to insert PostScript code into a document.

Split Personality

When you first run *Word* 3.0, you'll notice that the menus seem shorter than they should be. Because it's less intuitive than *MacWrite, Word* 1.05 has always been more difficult to learn. To compensate for this, *Word* 3.0 offers two modes of operation: Short menus and Full menus. Since the Short-menus mode approximates *MacWrite,* it's ideal for new *Word* users, but most will quickly move on to the Full menus, which display all options. After all, why spend $395 for a word processing program if it can't do much more than *MacWrite?*

Word 3.0 also lets you customize its menus. You can change menu formats, fonts, and sizes. For example, you can add infrequently used character formats (such as Strike-Through or Double Underline) to the Format menu or add an unusual type size to the Font menu. *Word* also allows you to create a Work menu, which contains style-sheet names, document names, and glossary entries (see Figure 1).

Outlining Your Options

In *Word* 3.0, your text appears in either Document View (the normal editing screen) or Outline View, or you can display the text in both forms simultaneously in a window pane. The outline function collapses your document to show only the major headings (see Figure 1). You then expand the headings individually or collectively to see subheadings beneath them—or the entire text. You can also move a heading, along with related subheadings and text, to another part of the document. These capabilities let you more easily organize the hierarchical structure of your document.

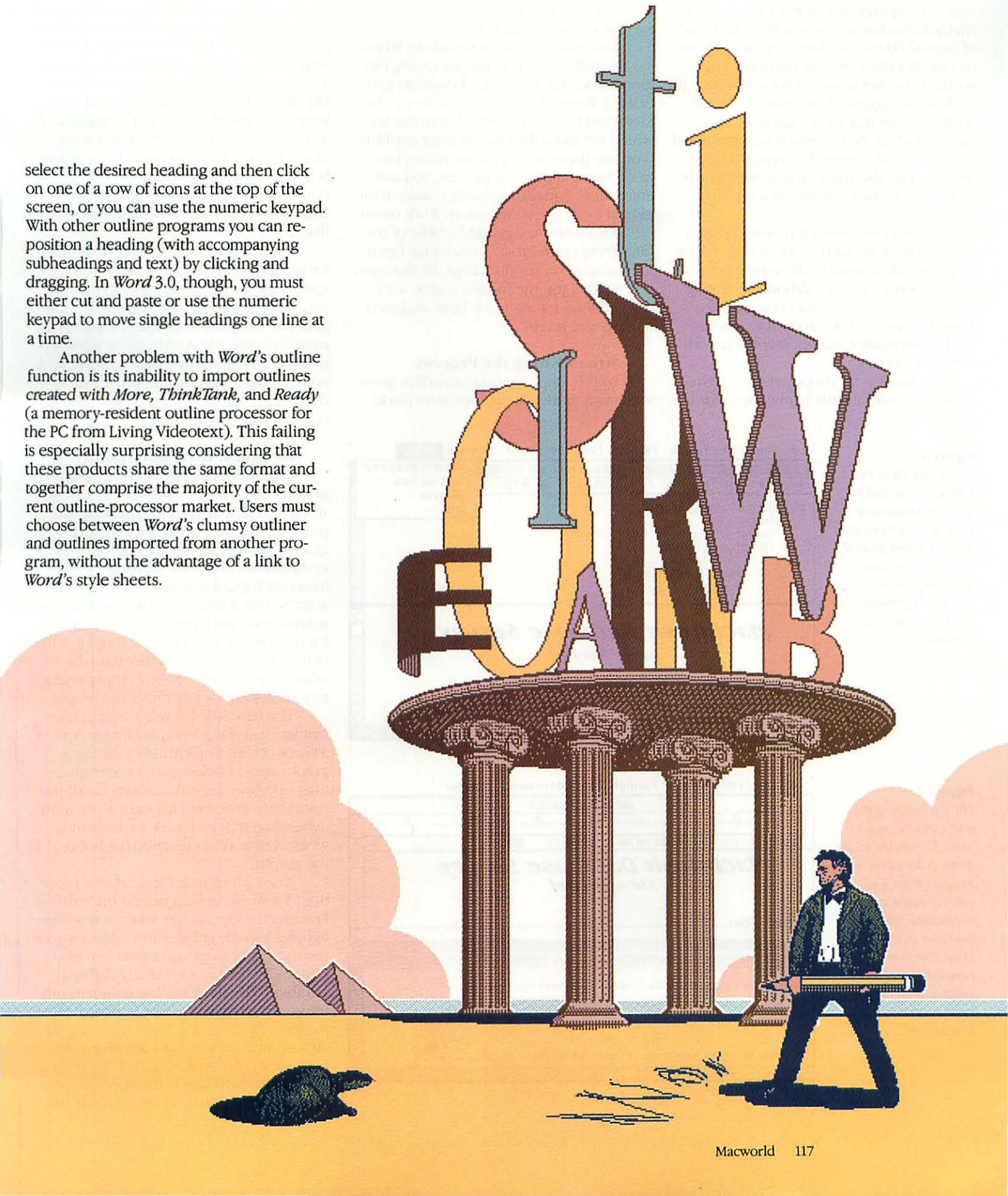
Although there are many excellent outline-processing programs for the Mac, including desk accessories like *Acta* and *Voila,* unquestionably, an outlining function within a word processor makes the most sense.

Word's outlining function is not as simple to use or intuitive as are dedicated outliners (such as Living Videotext's *More* or *ThinkTank* 512), or MindWork Software's *MindWrite,* the first word processing program to include a built-in outlining capability. With these programs, you expand and collapse headings by double-clicking the mouse button. To expand or contract a heading in *Word* 3.0, you must

ILLUSTRATION BY MICK WIGGINS

select the desired heading and then click on one of a row of icons at the top of the screen, or you can use the numeric keypad. With other outline programs you can reposition a heading (with accompanying subheadings and text) by clicking and dragging. In *Word* 3.0, though, you must either cut and paste or use the numeric keypad to move single headings one line at a time.

Another problem with *Word*'s outline function is its inability to import outlines created with *More, ThinkTank,* and *Ready* (a memory-resident outline processor for the PC from Living Videotext). This failing is especially surprising considering that these products share the same format and together comprise the majority of the current outline-processor market. Users must choose between *Word*'s clumsy outliner and outlines imported from another program, without the advantage of a link to *Word*'s style sheets.



The Complete Wordsmith

Another feature of *Word* 3.0 that's sure to be appreciated is the long-overdue spelling checker. It comes with a dictionary of over 80,000 words, but users also create and modify their own dictionaries. The spelling checker is somewhat intelligent: it capitalizes suggested alternatives for misspelled words that were capitalized previously and catches common typographical errors, such as reversed or repeated letters. You can also direct it to ignore words in all caps, to avoid problems with acronyms.

It often takes several mouse clicks to perform what should be one action (for example, to add a word to the supplementary dictionary User I), although this may change before the product is actually released. Also, several common words (including *shouldn't* and *bookstore*) are not in the dictionary.

To smooth out choppy right margins, *Word* 3.0 automatically hyphenates words for end-of-line breaks. The program uses an algorithm to determine the position of each hyphen, in combination with a list of exceptions to the algorithm.

Two more functions round out *Word* 3.0 as a full-featured word processing program: indexing and table-of-contents generating. Entries for both functions can be identified by codes embedded in the text, which are given the Hidden print attribute (you see them on screen but not on paper). To streamline the process, you can enter these codes in a glossary and put the glossary entry in your custom Work menu.

Alternatively, you build a table of contents from entries that have already been identified as outline headings. In this case, you needn't use the hidden codes, since the headings have already been assigned appropriate levels.

Streamlining the Process

Word's improved user interface gives you much more control over your work. For example, the program supports keyboard commands better than any other Macintosh application I have seen. Many of these commands require the numeric keypad (or the Mac Plus keyboard), however, which is frustrating if you don't have one. The numeric keypad is designed to emulate the traditional layout of the numeric keypad on the PC: for example, the keys 2, 4, 6, and 8 move the insertion point one character at a time. The abundance of keyboard commands is a boon to professional typists and anyone allergic to the mouse—you can use it as little or as much as you like.

Word 3.0 provides greater flexibility for working with large documents. By specifying the same file name in the Page Setup dialog box for several files, you can generate an index and table of contents for more than one file. And because *Word* lets you specify the starting page number, footnote number, and line number for each document, you can treat multiple files as one complete document.

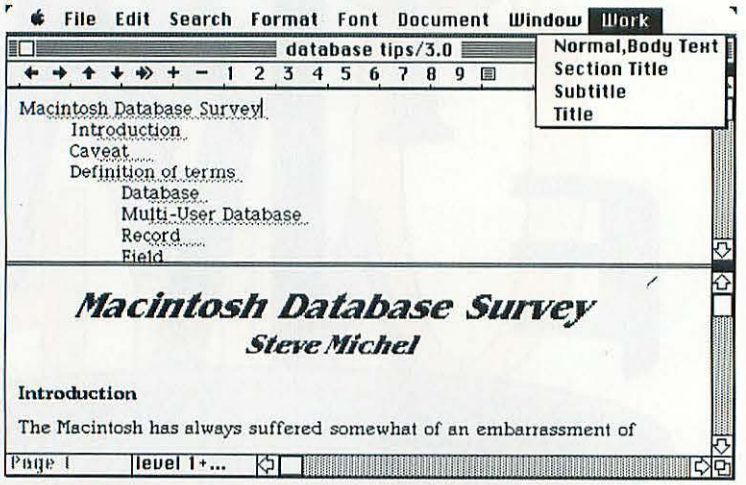


Figure 1
In Outline View, headings are indented by level. In Document View, they're formatted as predefined special outline styles, one for each level. You change the formats by modifying the style definitions.

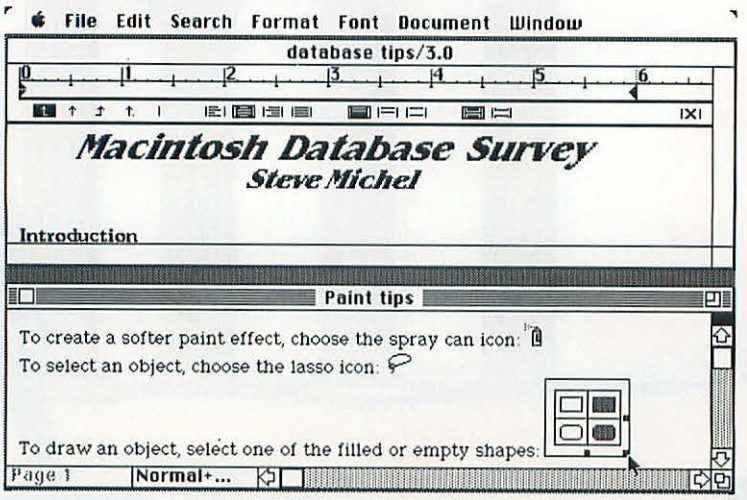


Figure 2
The top panel of the split window shows Word *3.0's ruler. Icons in the ruler allow you to select from four types of tab stops and various justification and line spacing options. The bottom panel shows how graphic images can be placed in the same line as text.*

Graphics, Text, and Numbers

If your documents routinely require graphics, tables, or mathematical formulas, *Word* 3.0 can lend a hand. The program provides two new options for mixing graphics with text, but they don't measure up to *Microsoft Works'* methods. *Word* treats each graphic image as a single character so that it resides on the same line as normal text (see Figure 2). This is useful for placing a small graphic symbol in a line of text. If the graphic is taller than the other characters on the line, those characters align with the bottom of the image.

The new Side-by-Side paragraph format lets you place a graphic image next to a block of text. Unfortunately, the paragraphs appear below each other rather than side-by-side on the screen—until you select Page Preview. This means you must depend on trial and error to determine when your text has reached the bottom of the graphic.

Word 3.0 includes several new functions for working with tabular information. Pressing the Option key when you're highlighting a single column in a table lets you use the Cut or Copy command to reposition it. Or you can add the highlighted numbers with the Calculate command and transfer the results to the Clipboard. Then position the insertion point wherever you choose, and paste in the sum. *Word* also has a new type of tab stop that places a vertical bar on each line in the specified position, a feature similar to one in *Excel* that

File Conversion

Because of the large volume of documents produced with word processing software, users frequently share documents on disk. A powerful word processor should minimize the stumbling blocks of such an arrangement by reading and writing a generous selection of file formats so that users can share documents while using different word processing tools. The file conversion functions in *Word* 3.0 are a dramatic improvement over those in *Word* 1.05. You can now import and export files in the following formats.

- DCA. IBM's format, sometimes referred to as Revisable-Form Text, has been embraced by most word processing programs on the PC. The availability of DCA on Mac *Word* means that document compatibility will be much less of a problem than it has been. The advent of network systems capable of connecting Macs and PCs has made the ability to handle this format crucial.
- PC *Word*. In *Word* 1.05, PC *Word* files had to be translated into Mac *Word* format via the separate program *Word Convert*. *Word* 3.0 performs this conversion internally and recognizes and brings across any style-sheet information used in the PC *Word* file.
- *MacWrite*. *Word* 1.05 took forever to convert *MacWrite* files while they were being retrieved. Furthermore, *Word* was invariably left in a brain-damaged state wherein every action took about five minutes to complete. *Word* 3.0 should retrieve *MacWrite* files better than *Word* 1.05 did, although this feature was not completely implemented in the version I used. Unlike *Word* 1.05, the new version lets you export files to the *MacWrite* format.
- *Microsoft Works*. This format allows documents to be loaded into *Works*' word processing module.
- Rich Text Format. This format facilitates the transfer of documents between disparate systems. It lets you transfer not only text and basic print attributes such as boldface and underline, but also font, size, and style information, as well as graphics.
- Text. *Word* 3.0 exports text-only files with line breaks, in addition to the normal text-only format. A file with line breaks can be uploaded to bulletin boards and mail services such as MCI Mail.

lets you set off a table with borders.

Word 3.0 can insert special codes within your text for building complex mathematical formulas. Functions such as integrals, brackets, fractions, and radicals are represented by one-letter commands with options. Show Paragraph mode displays the formula codes, while Hide Paragraphs mode shows the formula in final form. Although the functions are not as complete as those of dedicated formula-building programs such as *MacEqn* or *Tech*, this is a convenient feature.

Switcher version 5.1 performs a neat trick with *Word* 3.0 known as Quick Switch. It allows you to link a selection you've pasted into a *Word* document with the original data in *Excel*, *MacPaint*, or *MacDraw*. After changing numbers in *Excel*, or graphic images in *MacPaint* or *MacDraw*, you press one or two keys to automatically update the pasted selection in *Word*. If the pasted data contains numbers formatted with special print attributes, the numbers retain these attributes when the selection is updated. Graphic images will also retain their position on the page. Because it resembles *Jazz*'s Hot View, which dynamically updates pasted information, this feature has been dubbed "Warm View."

Page Preview and Setup

Who knows how much paper and time we've all wasted printing documents that turn out all wrong? *Word*'s Preview function works like *Excel*'s, which displays on screen a zoomed-back image of each page as it will appear when printed. Best of all, *Word* lets you preview facing pages. The magnifying-glass icon lets you zoom in on a portion of a page. In addition, you can move backward and forward through a document, change margin widths, scroll directly to a page, and print individual previewed pages by choosing Print.

To save time, you can limit the display to one page by clicking on an icon at the left of the screen (see Figure 3). Page Preview is the only way you can view multi-column documents as they will look when printed; however, you can't edit in Page Preview mode.

Several changes have also been made in *Word*'s Page Setup dialog box. The Set Default button redefines the default settings for all documents, and these settings stay in place until they're changed again. Because you're not restricted to preset choices, you can specify precise paper measurements and tab stops.

The Paragraph Formats menu contains a new setting called Border, which lets you insert simple lines and boxes within text. You can use the Box option to set off a paragraph—as the paragraph expands or contracts, so does the box—although you have little control over the spacing between the box and the text within it. The Bar option lets you place a vertical rule along the left edge of the paragraph, a good way to mark paragraphs that have been revised. Finally, you can designate a rule to precede or follow a paragraph. With each of these functions, you can specify a thin or thick line, a double line, or a shadow.

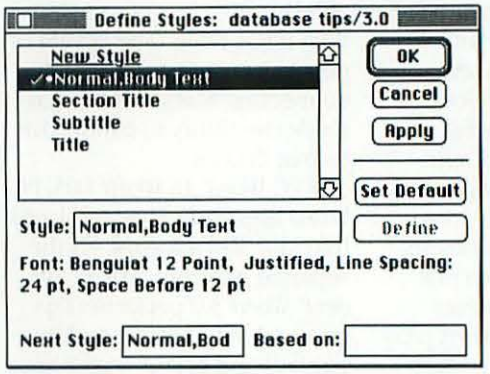
A Program with Style

For years, style sheets have been one of the most useful features in *Microsoft Word* for the IBM PC. Now, *Word* 3.0 brings style sheets to the Macintosh, providing a powerful tool for creating, structuring, and reformatting documents.

Word's style sheets let you decide exactly how the different parts of your document will look. Instead of formatting text directly, as you would with *MacWrite*, *Word* 1.05, or most other word processing programs, you establish the format for each section of the document. Then you apply that format to the text.

For example, you might set up the following formats for your document:

- Titles that are centered, boldfaced, italicized, and in 24-point type;
- Subtitles that are centered, boldfaced, italicized, in 18-point type, and followed by one blank line;
- Section titles that are left-aligned, boldfaced, in 12-point type, always followed by one blank line, and never separated from the first paragraph of the section;
- Body text that is right-justified, in 12-point type, double spaced, and preceded by one blank line.



Define Styles
You can create style sheets in the Define Styles dialog box, setting the style of the body text (as shown), the section title, the subtitle, and the title. You can also base one style on another for easy reformatting.

Each collection of character- and paragraph-format settings is considered a style, and all these styles together form a style sheet. Although a style sheet is usually created for a specific document, it can be used for several. Style sheets are stored on disk with a specific document but can easily be transferred to other documents.

Once you've created a document that uses the collection of styles you established, the real power of style sheets becomes evident. Since no formatting was done within the document, you can easily change it just by modifying your style settings. For example, if you decide that body text really shouldn't be right-justified, you can simply reset the body-text style, and all the body text will instantly be reformatted. Or you might want

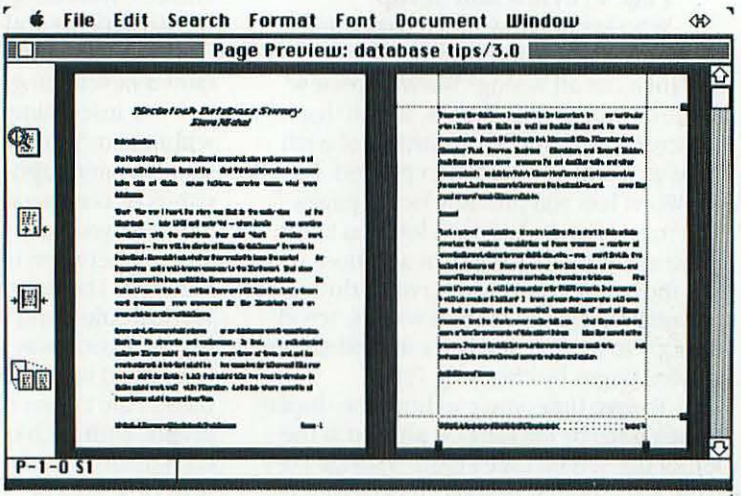


Figure 3
Page Preview shows up to two formatted pages at a time. Use the icons on the left side of the screen to change margins, page breaks, header/footer positions, and number of pages displayed.

A Line Numbering option places numbers at a specified distance from the left edge of the text to identify the lines on the page. These numbers appear on the screen when you use Page Preview and on the printed output. Line numbering is a feature used mainly in law offices, but it is also useful in other situations.

Merging and Repagination

The Print Merge function has also been given a minor face-lift in *Word* 3.0. First, you can merge to a document as well as directly to the printer. In this case, the merge output (usually form letters) is routed, one copy per page, into a new document that you can examine and edit before printing. Second, you can limit the records (usually names and addresses) that will be used in a merge operation by specifying

the first two lines that follow section titles to be in a font that's one size larger. Changing a particular section-title style affects all the text that has been entered under that section title. Imagine how your own word processor would perform these tasks. While it might be able to do so, each setting would probably require painstaking manual reformatting, no matter what program you now use.

Those familiar with style sheets on the PC version of *Word* will notice some differences in the way they're implemented on the Macintosh version. With PC *Word,* you must define styles in a special Gallery window, and your text is not visible. With the Macintosh version, you have the option of either creating the style in the Define Styles dialog box, or first formatting the text *directly* and then creating a style based on the formatted text. Two important improvements over PC *Word* styles have been made in Mac *Word* 3.0: you can base one style on another, and you can specify a different style to follow the one you're defining.

Having the ability to base one style on another makes reformatting a document even easier once it has been "styled." You can start with a body-text style, for example, and then build on that by setting up the indented-quotation style as "Body Text + Indent: Left 1 inch, Right 1 inch." In this way, the indented-quotation style is linked to the body-text style—it assumes all the characteristics of the body text, except for the specified differences. When you change one style, all the styles that are based on it also change.

The ability to specify that one style follow another is useful for documents whose sections always conform to a certain order. For example, if a section title is always followed by the first paragraph of body text for that section, you would specify a section-title paragraph. When you type the section title and press Return, the next paragraph is automatically styled for body text.

You can also chain styles together, one after the other. For example, you could have a title style, followed by a subtitle style, followed by a section-title style, followed by a body-text style. Simply selecting the style for the first line sets up the entire format for the beginning of your document.

Once you understand the power of style sheets, you'll wonder how you ever got along without them. It's much more sensible for the word processing program to keep track of your document's various formats than for you to format each section manually. You know these various sections are related—so why shouldn't your word processor know, too?

starting and ending record numbers.

Another improvement in the program is the repagination process, which is not only much faster but also more intelligent. Before it spends time reformatting, *Word* checks each page for revisions, skipping pages that have not changed.

One of the most frustrating aspects of this upgrade is its failure to eliminate repagination altogether. Unfortunately, Microsoft decided to separate the formatting process from the editing process, and that's what Page Preview is all about. It's reasonable to opt for editing speed over dynamic screen update, but for those of us accustomed to word processing programs (like *MacWrite*) that always show the correct page breaks, it's still annoying.

Word has defined a special style for inserting PostScript code directly into a document, which lets you do a lot more with the LaserWriter from within *Word.* For example, previously you may have used a page-layout program just to perform a simple task like surrounding your page with a box. With *Word* 3.0 you can insert a small PostScript program to do this instead.

The Final Word

Word 3.0's abundance of features and improved performance make it the most powerful word processing program available for the Macintosh. With its style sheets, outlining facility, spell-checker, and other high-end features, *Word* 3.0 is best suited for larger, more complicated documents, such as books, manuals, contracts, newsletters, and reports, which often require extensive formatting. Although *Word* 3.0 may not be the best program for creating simple memos and letters (especially considering its $395 price), the user interface has been sufficiently modified to make it less obstructive for the casual user. In spite of the program's strengths, it has some disappointing drawbacks, such as its cumbersome outliner and its inflexibility in juxtaposing graphics and text. Nevertheless, *Word* 3.0 is a vast improvement over the previous version. I give the program my vote for upgrade of the year—or should I say the last two years? □

See *Where to Buy* for product details.



JOHN MARRIOTT

The sun did not shine. It was too wet to play.
So we sat in the house all that cold, cold, wet day.
I saw there with Sally. We sat there we two.
And I said, "How I wish we had

SOMETHING

to do!

–From *The Cat in the Hat,* Dr. Seuss*

*Quote ©1957, Dr. Seuss, reprinted by permission of Random House

Kids' Stuff



Free and easy ideas for children's games and projects

by Carol Johnson

If winter weather's got you scouting for new sources of indoor entertainment for your preschoolers or older kids, don't overlook your Macintosh. As you probably already know if you have one around the house, children love computers—particularly the Mac, with its happy face/sad face operating style and graphics abilities.

While Macintosh programs for children remain fairly limited in number (see "KidsTime," *Macworld,* September 1986), you can create scores of puzzles, games, and rainy-day activities with *MacPaint* and a little imagination. If you have some display fonts, disks of clip art, or a color printing utility, so much the better.

To get you started, here are half a dozen ideas for games you can make for your preschoolers. For older kids there are a similar number of answers to that perennial whine, "There's nothing to do!"

The Littlest Hackers

You don't need a kindergarten diploma to hack on a Mac. Pounding on the keyboard with *MacWrite* can start as early as nine months of age, but be sure to put the mouse out of reach. Use the Caps Lock key and a big bold font like 24-point Geneva Bold. Or try one of the pictorial fonts, Cairo or Taliesin (see "Free Clip Art"). Babies get a bang out of the images in Cairo, and a verbal one- or two-year-old can name many of the pictures.

Count Me In

Three-year-olds will like counting with you on a *MacPaint* screen. Put a few 72-point dogs, babies, cars, or some other favorite from the Cairo font on the screen, and as your child points to each object and counts, print the number underneath the object. Double-click with the eraser, pick a new object, and do it again.

Four-year-olds are coordinated enough to use the mouse, albeit under adult supervision. Prepare a *MacPaint* document with three different counting exercises (see Figure 1). Put sets of objects on the screen with a row of large numbers beneath each set. Your child then counts the objects, selects the correct number, and puts it in the circle next to the objects. Little ones find the selection rectangle easier to use than the lasso. Print out the finished page, and your child can color it in.

Six of One

Sorting games are an intellectual step up for your sophisticated preschooler. Draw two boxes at the top of the screen; label them "Big" and "Little" (see Figure 2). Choose a Cairo picture and print one copy in 24-point and one in 48-point, then make eight or nine copies of each. Ask your child to put all the big pictures in the Big box and all the small ones in the Little box.

Try displaying a selection of Cairo images for your child to sort into things with wheels, things you can eat, things that grow, and so on. Or make multiple copies of an image, modify or shade all but two of the copies, and ask your child to find the two that are exactly alike.

The variations are endless.

Learning your ABZs

The Mac can't be beat for familiarizing a preschooler with letters and words. Pick a recognizable object and put it on the screen. Ask your child to say the name, and then print the name in large caps (Geneva bold is a good choice, as it's made out of simple, straight lines). Say the names of the letters. Have your child trace the letter shapes with a finger on the screen. Older kids can trace letters with the mouse or, with your help, find the letters on the keyboard and print the word.

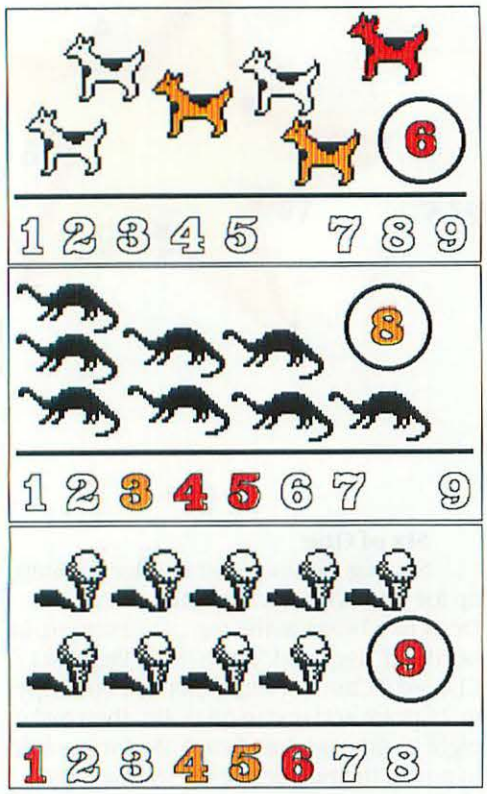


Figure 1

Simple counting exercises are easy to make with the Cairo font. Once you and your child have counted the objects and dragged the correct sum to the answer circle, print the picture and let your child color it.

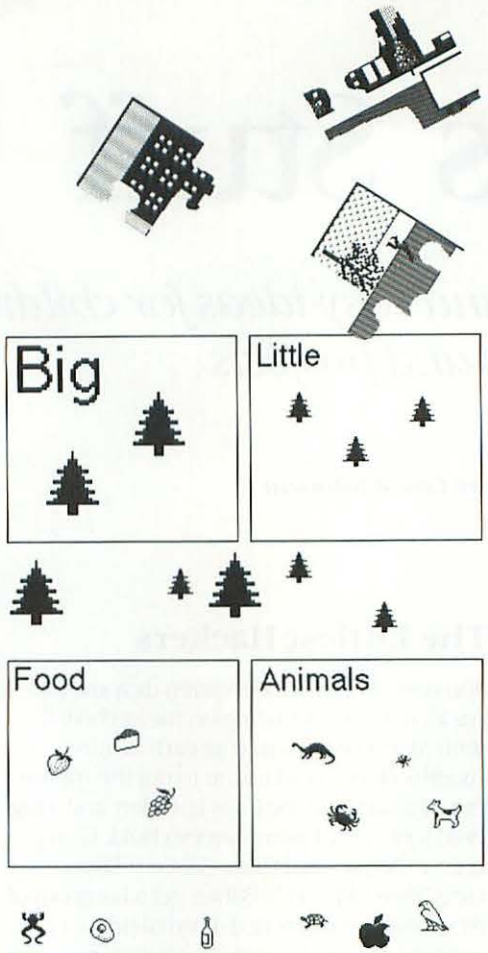


Figure 2

Challenge your preschooler with sorting games. Your child uses the selection rectangle to sort items into the correct boxes.

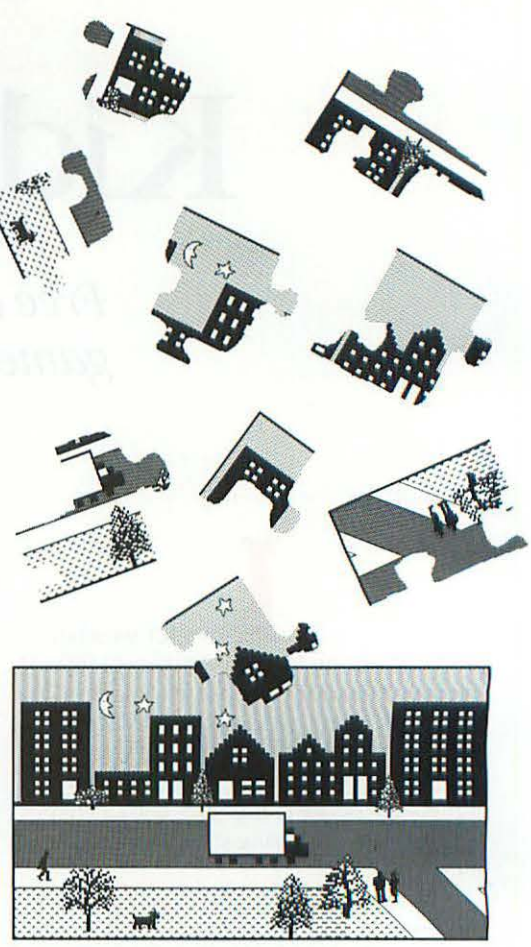


Figure 3

The scattered puzzle pieces fit together to make the scene above. All the picture elements come from the pictorial fonts Cairo and Taliesin.

Tell Me a Story

Many children are natural storytellers, and all enjoy being a story's major character. Have your child dictate a story, or write one yourself especially for your child. It's best to work in *Paint* because its fonts are larger than *MacWrite's*. And of course, you can liberally illustrate the story. If you have an ImageWriter II, a printing utility like *ColorPrint* can help you produce professional-looking full-color picture books. If the time and effort required for elaborate full-color stories seem daunting, use outline drawings and have your child color the results with crayons or felt-tip pens.

If you are using a presentation program at work, such as *Slide Show Magician,* why not bring it home and make a talking storybook or bedtime story?

It's Elementary, My Dear

The following batch of projects is aimed at the school-age brigade. Some activities require parental participation; kids can do some by themselves. For more ideas, children's activity books are a good source of inspiration.

Amaze Your Friends

The first idea comes from *Macworld*'s June 1986 *Open Window.* Philip Chilcote, of Modesto, California, suggested making *MacPaint*-enhanced snapshots of mazes from the Apple Guided Tour disk's Amazing program. Just print out the results and hand your kid a pencil. Amazing's easiest puzzles are fine for five-year-olds. The hardest are challenging for adults.

Honk If You Like Stickers

Another creative parent-generated idea comes from Xochiquetzalzin Villicana de Cronkhite, of Culver City, California. Xochilt ("so-chill") and her 13-year-old daughter Erendira print 1- by 3-inch stickers on pin-feed label stock. The hardest part, they say, is making a template so that the images fit on the labels. To solve that problem they plan to get an ImageWriter II and use *Silicon Press* to print labels effortlessly and in color.

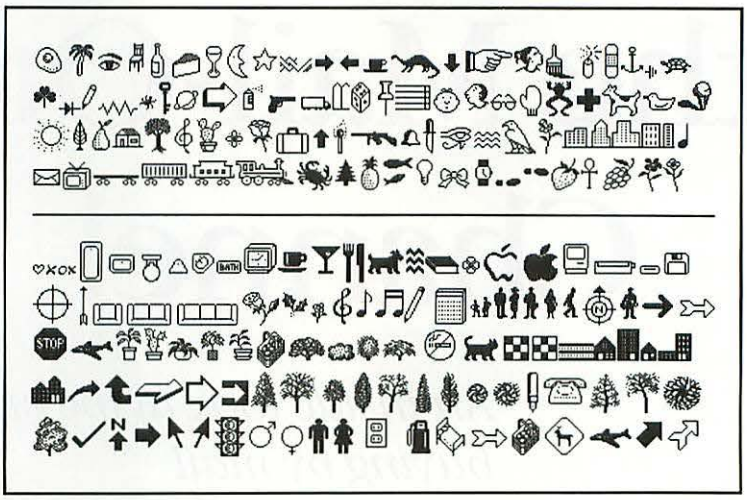
Large paper- or office-supply stores stock a big selection of labels: round, fluo-

Free Clip Art

The two pictorial fonts Cairo (top) and Taliesin provide a rich source of images for creative fun. Once you install them in a system disk with the Font D/A Mover, you can access them directly in *MacWrite* or another word processor simply by using the Font menu. This ability makes it easy for you to create games that combine words or numbers and pictures.

Cairo used to be distributed by Apple as part of the Mac system disk. Currently, the only way to get hold of the font is to unearth one of those old systems.

Taliesin still comes with *MacDraw*. Although it's primarily an architectural font, kids like many of its characters—especially the cat, dog, flower, airplane, and assorted trees. Both fonts are especially handy (and good-looking) if you print the characters in sizes larger than the native 18-point.



If neither of these pictorial solutions suits you, perhaps a disk of clip art would be more to your liking. Most clip-art disks cost from $15 to $40; "Art to Go" in the December issue of *Macworld* describes more than one hundred collections.

rescent, pin-feed, sheet-feed, permanent, removable. Buy a couple of different kinds and experiment.

I tried to avoid the template problem entirely by using full-sheet, pressure-sensitive label stock. Using this kind of stock, I created several large labels on one sheet and cut them out. The heavy stock makes good bumper stickers, but the kind I got didn't have enough tooth, so it tended to streak. A rougher stock finish or a light coating of spray fixative would probably give better results.

It's a Puzzlement

It's easy for older kids to construct all types of puzzles on the Mac. Jigsaw puzzles make a good activity for two. The puzzle maker creates a simple scene and then fragments the picture into large pieces with the lasso (see Figure 3). The solver selects each piece with the lasso and uses the grabber hand to scroll from the puzzle-piece section of the *MacPaint* page to the picture-completion area.

For a younger child, try making some simple connect-the-dot puzzles. Start with a clip-art image, put dots around the outline, erase the outline, then number the dots and print it out.

Come In, Squadron Leader

My current favorite creative vehicles are Mac-produced paper airplanes. Dogfights are a hit with all my friends, from 2½-year-old Cameron to my 62-year-old mother.

Fold a plain piece of paper into a plane and rough in your design elements in pencil. Then unfold the plane and use the pencil marking as a guide for placing your Mac graphics. Bilaterally symmetrical designs or stripes fold naturally into pleasing angles on the finished plane. Black-and-white planes are quite nice, but for spectacular results try printing them in color.

The Best Things in Life

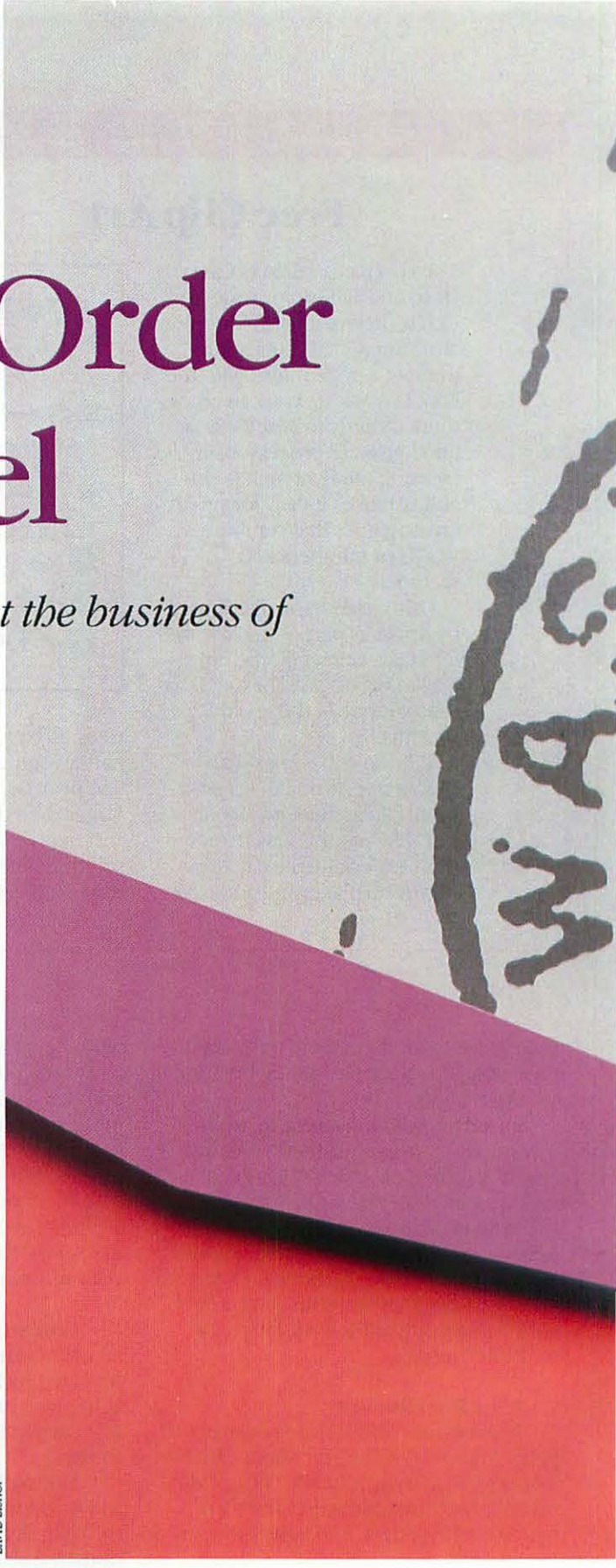
These ideas have all been laboratory-tested by my own circle of small friends, but these are by no means the last word in Mac ideas for kids; make them jumping-off places for your own explorations. In the end you may find the Mac's relative lack of children's software a blessing in disguise, since the amusements we make up ourselves usually turn out to be the most fun. □

See *Where to Buy* for product details.

Navigating the Mail-Order Channel

An inside look at the business of buying by mail

by Nancy E. Dunn



DAVID BISHOP

Many mail-order companies offer tempting prices for Mac programs and hardware, but it's not just the prospect of saving a few dollars that leads more and more consumers to do business with perfect strangers. Mail-order suppliers, with warehouses in low-rent locations that would never work for a computer store, can afford to stock a wider variety of products than many computer retailers can crowd into their limited display space. And then, of course, there's convenience, the same factor that has caused the recent boom in frozen food sales, which exceeds even the wildest dreams of the people who introduced the TV dinner to Americans in the fifties.

In fact, InfoCorp analyst William Higgs predicts that by 1990 consumers and businesses will purchase 30 percent of all software from mail-order companies.

The prospects have not always looked so promising to people in the business of selling computer products by mail. According to the half-dozen mail-order suppliers I talked with, most people harbor an innate distrust of the business, as if they are afraid it's the most recent incarnation of the snake-oil salesman. Joe Bonazzo, president of Programs Plus of Connecticut, recalls, "Five years ago, in the infancy of personal computers, people were slow to come to mail-order sup-



pliers." In those days, few people knew much about personal computers; they needed the personal attention and hand-holding a local dealer could provide. Since then, resistance to mail-order sales has waned as buyers have become better informed.

But the recent well-publicized troubles with Northeastern Software of Shelton, Connecticut, have shaken the faith of some. "Northeastern gives the whole mail-order industry a black eye," says Pete Sattler, president of Tussey Computer Products of Stateline, Pennsylvania. "When a mail-order company advertises very low prices and then provides poor customer service, it makes people wary of doing business with any mail-order company."

A Bad Apple

Northeastern had racked up an unprecedented number of customer complaints at *Macworld* and at the local Better Business Bureau in Connecticut before filing for protection from creditors under Chapter 11 of the bankruptcy code on October 29, 1986. "Generally people only talk about the companies they've had a bad experience with," says George Voltz, who keeps in touch with Mac user groups all over the country for the Boston Computer Society. "Northeastern is about the only one I've ever heard anything bad about."

Most people complained of goods ordered and paid for but never received and of refund checks that were refused, delayed, or even returned by the bank. At press time, the company was still nominally in operation (though only the Muzak answered when I called), but it was under investigation by the U.S. Postal Inspection Service and the Connecticut Department of Consumer Protection.

Mail-order industry insiders speculate that Northeastern's troubles stem from the pricebuster approach the company took. But Sattler of Tussey looks at it this way: "If I'm on an airplane and find coffee stains on the fold-down tray, it scares me because I figure they might be sloppy about the mechanical maintenance too. The same thing goes for Northeastern; if they couldn't manage their inventory properly or provide adequate customer service, I venture to guess that they had no idea whether or not they were even making money."

Service is the name of the game, and each company tempts a potential customer's touch-tone finger in a different way: from PC Network's electronic bulletin board for members, replete with public-domain software and a hefty 500-page catalog, to Tussey's largely successful attempt to ship nearly everything the day after the order is placed, to Icon Review's product screening and value-added catalog, to The Savings Zone's personal attention, hands-on Mac expertise, and electronic bulletin board. Mac Connection, probably the most-praised outfit of the bunch, offers a $2-per-order shipping fee, a 120-day warranty, and Club Marlow, a new express buying service that gives members a number to expedite ordering, shipping, and tracking.

Of Back Orders and Vaporware

At all the companies mentioned in this article, the sales force works with computers to check inventory while entering a customer's order. This is meant to avoid unexpected stock shortages, which leave customers wondering when products will arrive. Nevertheless, the most common customer service call is "Where is the widget and program I ordered?" Joe Bonazzo advises buyers to "get in line" for a back-ordered product if it's a hot-selling item: "Unreleased products might be sold out through back orders; a lot of products in this industry are in short supply. Small companies that are undercapitalized can't produce the quantities we need, so maybe we'll order 30 LoDown drives at a time and get only two." Experienced mail-order consumer Dennis Embry suggests looking around for the shortest line, though. For example, when he learned a mail-order source had a long waiting list for Mirror Technology's hard disk, he called the manufacturer, who filled his order right away. "The mail-order company was in line, but I wasn't," Embry says. "It's like going to a supermarket—there are many lines."

Vaporware—products that have been publicized but not released—poses a different problem. Mail-order businesses prepare ads two or more months in advance and often work on catalogs even earlier. "We try to anticipate what products will be available, but it's not always possible," says Icon Review's Marilyn Jessup. "It's also hard to predict what's going to happen with a promotion, so even if a product is released in time, with 350,000 catalogs out there, demand might exceed supply."



Inventory products crowd together in Icon Review's step-saving warehouse (note the white packaging peanuts hanging from the rafters). Boxes go downstairs from here to delivery trucks that carry them to customers.

Preparing for Smooth Sailing

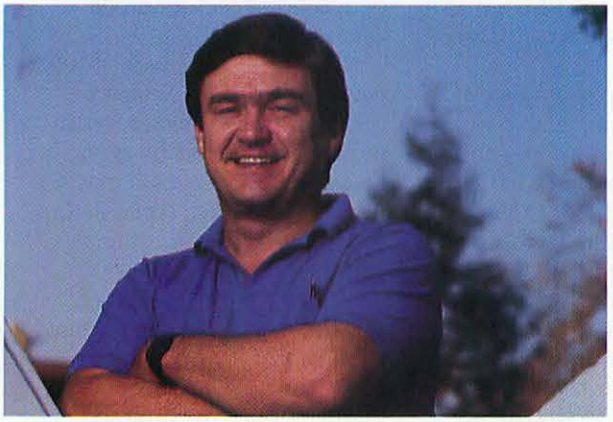
Most complaints about mail-order fit into the category of unpleasant surprise—an unexpected shipping delay, the wrong product version, unanticipated costs. Then there's the irritating irony of spending time to unravel a snafu in a process that you expected to be convenient. Avoid surprises by informing yourself and by taking a few precautions. This list of tips comes mainly from the experts—mail-order executives who'd prefer to prevent problems rather than correct them.

- Know your equipment—how much memory and which version of ROM your Mac contains, and which model your printer, modem, and other devices are. Know which version of system software you have, and make a point of asking about hardware and software compatibility while placing your order.
- Know what version of software you want and what it does. Some mail-order houses have well-informed Mac users handling telephone orders, but you can't count on them to know everything about all the products. So do some research before you order pricier items. Though mail-order suppliers may agree to accept the return of a piece of software that doesn't do quite what you had expected, they can't be held responsible for the hyperbole or omissions in manufacturer's advertisements.
- Read the fine print in the mail-order company's ads and catalogs.
- Before placing a big order with a company you've never tried, assess its service record by calling the local Better Business Bureau. The BBB keeps track of customers' complaints. Joe Bonazzo, head of Programs Plus in Connecticut, says the telling sign is whether the BBB shows outstanding *unresolved* complaints. Any mail-order company concerned about its customers and image checks regularly with the BBB to monitor complaints and take care of them.
- Don't prepay unless you're familiar with the dealer; instead, use a credit card—and ask when your card will be charged. Or ask for COD.
- Other questions to ask when you call: Does this product come with everything I need to operate it (cables or adapters, for example)? Are all the goods in stock now? When do you expect to ship them? When should I expect to receive them? What is your return policy? How many returns have you had on this product? Refund policy? What about warranties and service? What is the customer service phone number and address?
- Don't rush yourself—you could save money. Dennis Embry, who has bought more than $7000 worth of gear and programs from ten different mail-order companies, rarely has a problem, though he, too, was caught in the Northeastern net. He has good words for the manufacturers he ordered directly from and for the five other Mac firms he's dealt with: Vision Technologies, Mac Connection, Icon Review, Tussey, and The Savings Zone. He attributes his good record, in part, to careful questioning before placing the order. In fact, he often calls the same firm more than once for a price check and then buys at the lowest one quoted, saying, "I talked with Jeff earlier and . . . " Embry says, "You learn that everything is negotiable; there is no such thing as a fixed price."

  Ask for the *delivered* price to avoid any surprises about shipping and handling charges or additional fees for credit card payment.
- Ask the salesperson to read back the order. PC Network president Steve Dukker recommends this approach—even though the salesperson may be reluctant—to catch typos in the order before they misdirect your order to a neighbor or cause the IBM PC version of *Microsoft Word* to reach your waiting arms.
- Make notes while you are on the phone—the time and date of the order, the name of the salesperson, what you order and when you expect it to arrive, and so on. If you order by mail, keep copies of your order and any follow-up correspondence; put a copy of your cancelled check with those records. Keep the sales slips and shipping receipts with your other records.
- When your package arrives, don't put it aside on the shelf. Put the programs or hardware through their paces and return defective merchandise right away. But call customer service first for a return authorization number; most companies don't accept a package without one.



San Francisco lawyer Cary Klafter purchases software by mail because of the savings. Retail stores, he says, don't provide enough service to justify the additional markup. The trade-off? Sometimes waiting for the program to arrive. But he says, "I've never had occasion to need a program the same day."



Professor Philip H. Dreyer compared ads for mail-order houses before choosing Northeastern. Dreyer, a first-time mail orderer, is wary after receiving a partial order and no refund: "It's going to take me a long time to place another order by mail."

A Matter of Timing

When you get the product might not matter—it's something you consider worth waiting for—but if you've already paid for it, the frustration mounts. Programs Plus does not charge credit cards until the products are shipped, nor does Tussey or Mac Connection. In fact, Mac Connection president David Hall said the company had to customize its order-processing software to avoid charging credit-card customers right away.

Icon Review has not yet found a way to customize its software, but according to marketing manager Marilyn Jessup, the company is looking into how to delay credit card charges for products that aren't shipped immediately. PC Network now charges the cards right away; president Steve Dukker says his organization previously processed too many exotic special orders that were later denied credit authorization.

Time is of the essence when it comes to taking orders, too. The sales operations of each company polled all have a system for displaying the number of incoming calls on hold and for handling overflow. The amount of time people have to wait varies with the time, day of the week, season—and company. Mac Connection recently launched a program to answer after only one ring; at Programs Plus you might wait on hold for as long as two minutes. Joe Bonazzo says, "Calls come in bursts; it's as if everyone in the country picked up the phone at once." The peak period varies due to companies' different time zones, and the preholiday buying season is almost always busy. Steve Dukker of PC Network suggests calling on Friday evening when "the phones go to sleep."

Even the best-laid plans of the most well-intentioned and well-managed companies may go astray. David Hall related how in the early days Mac Connection's computer system crashed—twice. And last November when The Savings Zone started to back up its Macintosh file server to a streaming-tape drive for the first time, the hard disk was reinitialized instead, destroying all the company's data. During an interview, Dennis Wilkins, one of the company's founders, apologized to any customers whose orders were fouled up at the time.

In Case of Trouble

If, despite good intentions and your careful preparation (see "Preparing for Smooth Sailing"), your order hits a snag, start by trying to straighten it out with the company's customer service reps; the firms have a lot to gain by solving your problem.

If that doesn't work, however, you're not on your own (see "Getting Satisfaction"). Mail-order sales are governed by rules of the Federal Trade Commission (FTC), U.S. postal laws, and various state laws.

Because the mail-order section of federal law was written before the popularization of toll-free telemarketing, legal protection differs somewhat depending upon how you place your order. If you order through the mail, the seller must ship your order within 30 days of receiving it, unless the advertisement clearly states it'll take longer. If the seller anticipates a delay, you must be notified before the promised ship date and given the chance to cancel the order or accept a later shipping date. Even if you agree to a delay, you may cancel the order any time before the product has been shipped. A refund must be mailed within seven business days if you cancel an order paid by check or money order. If you cancel an order paid by credit card, the seller must credit your account within one billing cycle following the receipt of your request.

With a telephone credit card purchase, the seller's duty to deliver promptly is not spelled out. And, of course, you can't appeal to the U.S. postal inspectors to help you collect if you run into a problem. But buying with a credit card offers an advantage that people holding tickets for seats on airlines that suddenly go bankrupt have come to appreciate: even if the airline—or mail-order company—goes out of business, if you haven't received the goods you've charged to your card, you can probably arrange to remove the charge from your account.

Getting Satisfaction

If you have trouble that exceeds the bounds of simple human error and don't feel the company has been cooperative in attempting to resolve the problem, alert one or more of these organizations for aid:

- The U.S. Postal Service. If you order by mail, contact your local postmaster for the name and address of the appropriate postal inspector in charge.
- Your state or local consumer-protection office. If you don't know how to find the agencies, contact a local legislator's office for assistance. State and local laws vary tremendously, but some states, such as Connecticut, have strong laws that give consumer-protection agencies enough enforcement power to put a company out of commission.
- The consumer-protection agencies in the merchant's home state.
- The Better Business Bureau closest to the mail-order company.
- The editor or publisher of the magazine, book, or newspaper that carried the advertisement. At *Macworld* we can't investigate every complaint about advertisers. But if a pattern of consumer abuse emerges, we alert our readers; for example, we responded to the letter about Northeastern in our October 1986 issue. The magazine can go as far as rejecting advertisements from a company whose business practices seem dubious, as *Macworld* finally did in the case of Northeastern (see Jerry Borrell's editorial "No-Ware Land," *Macworld,* February 1986).
- The Federal Trade Commission, Washington, DC 20580. The FTC doesn't help solve individual problems, but it keeps track of complaints to find a pattern of questionable practices that might bear investigation and restraints.

The problem of nonreceipt of merchandise, typical of the complaints *Macworld* received about Northeastern Software, may be handled differently by different credit card companies, but how you begin an effort to recover your money is the same. Call the customer service number on your credit card statement to learn where to send a request to remove a charge from your account; ask what you need to include in the letter. Visa and MasterCard return the charge to the merchant's bank, so in the case of Northeastern, instead of having a long line of individuals waiting along with software distributors who are owed big bucks, Northeastern's bank takes on the task of collecting the refunds. American Express issues temporary chargebacks while its customer service representatives investigate your complaint. If you have paid the amount on your statement, perhaps to avoid finance charges, you may have to wait a longer time for a credit to show up on your statement. And, though a spokesperson said Visa's rules are interpreted to give the consumer the benefit of the doubt, write promptly if the mail-order company doesn't issue a refund you're entitled to. Visa wants to hear from you within 120 days of the transaction; MasterCard, within 60 days of the mailing of the statement that lists the disputed item.

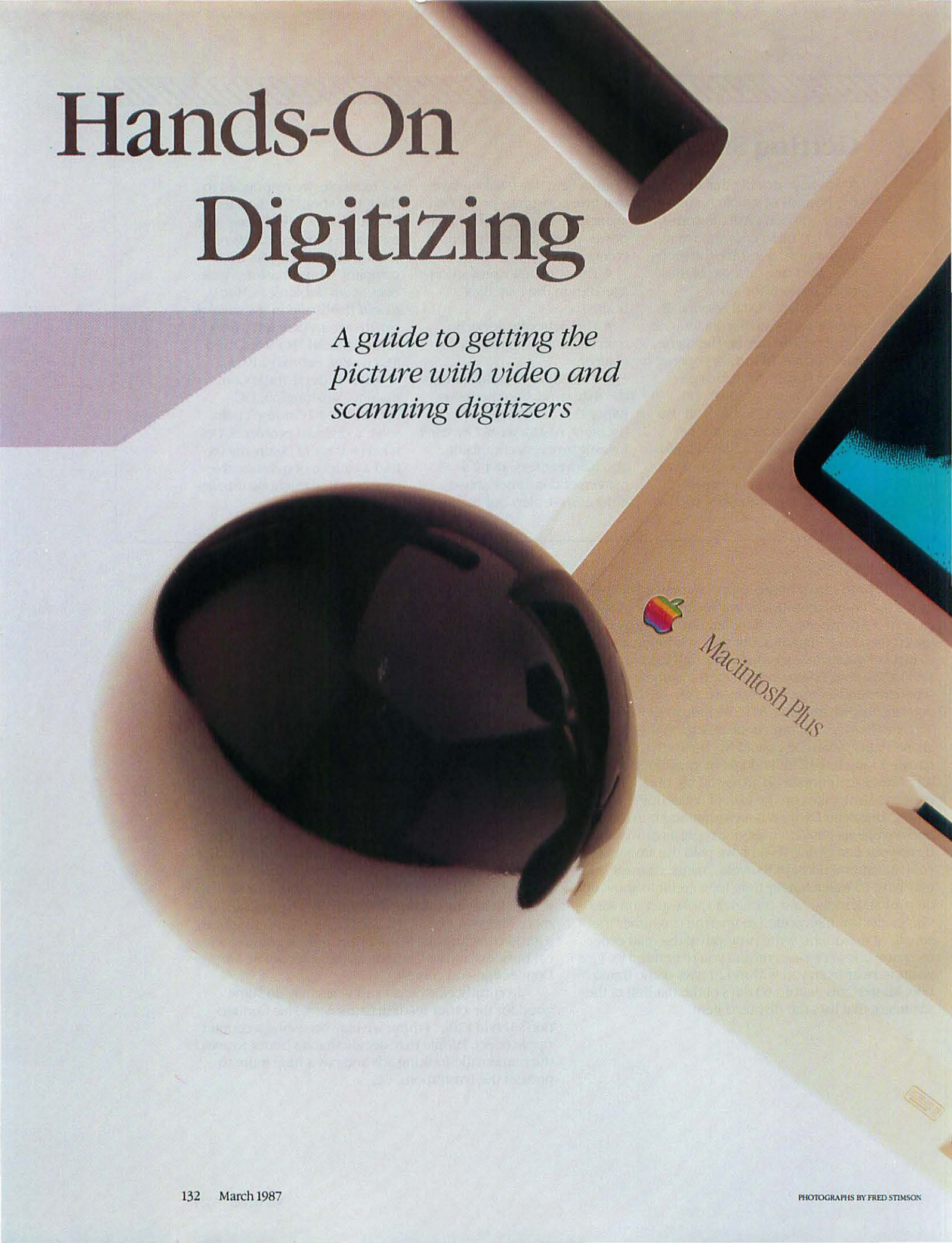
The Ripple Effect

To avoid even the possibility of having to engage in such tedious follow-up, some people may return to the waiting arms of the local computer dealer. In fact, some who routinely order software by mail won't cross the line to order hardware long distance. Art Kleiner, an editor of that by-mail compendium *The Whole Earth Catalog,* vows not to order computers by mail, though he does send away for software, peripherals, and upgrade boards. Derek Van Atta, an owner of a respected Mac-only retail outlet in Silicon Valley, says, "Sixty to seventy percent of the time, if price is not a major factor, you're better off going to the local computer store, cracking open a manual, and sitting down for an hour to try out a product to make sure it's what you want." Probably about what you'd expect a retailer to say. But Van Atta's ComputerWare store has a healthy sideline in mail order. "If there's a good dealer nearby, it's worth paying a little–and sometimes even a lot–more," he says, "but if it comes down to ordering from a good company like Mac Connection or going to a local Businessland or ComputerLand, it would be Mac Connection–no contest."

Ironically, Northeastern's woes may do some good for the other leading firms. Says Mac Connection's David Hall, "I think we may be seeing a counter ripple effect. People may decide that it's better to avoid the homemade-looking ads and pay a little more to prevent the frustrations." □

Hands-On Digitizing

A guide to getting the picture with video and scanning digitizers



PHOTOGRAPHS BY FRED STIMSON



by Gordon McComb

Macintosh digitizing is like a kind of photography, but instead of rendering light waves into information on a piece of film, the digitizer converts visual information to a form that can be stored on a floppy disk. The digitizer can be an electronic aperture through which you bring three-dimensional reality into the digital world of the computer. Or you can use it as a means to transfer two-dimensional images created in other mediums—pen and ink, photography, paints—to the computer for editing and manipulation.

Digitizers open up a world of graphic possibilities for artists, designers, desktop publishers, animators—anyone who works with images. Like using a camera, however, operating many Mac digitizers requires technique. Unlike most Mac procedures, which are so fully automated that they can be performed virtually with the click of a mouse, digitizing remains something of an art.

The Basics

Mac digitizers come in two forms: video and scanner. Video digitizers work with a video camera or some other video source, such as a VCR or a disk player. They transform incoming video signals into digital data, then pass it along to the Mac, which displays it as a bit-mapped image. Video digitizers currently on

the market include Koala's MacVision and New Image's Magic. Though Mac video digitizers differ, their basic functions are much the same. Because it is the most widely used video digitizer for the Macintosh, the examples in this article apply to the MacVision system.

Scanner digitizers are available from Thunderware, Abaton, Microtek, Datacopy, Dest, and others (see "What's New in Scanners"). These systems contain precision optical devices that scan a piece of paper, sensing its light and dark areas. Most scanner digitizers are self-contained peripherals. Using one is a simple, mechanical process–like feeding a photocopier, except that the duplicate appears on the Mac's screen.

ThunderScan, from Thunderware, is an interesting exception. This system takes advantage of the ImageWriter printer mechanism to offer a low-cost digitizing alternative. The ThunderScan optical scanning assembly fits into the ImageWriter in the holder designed for the ribbon cassette (see Figure 1). To digitize an image, you insert your original in the ImageWriter's platen. The ThunderScan software moves the print head back and forth and rolls your original through the printer as the optical assembly reads the image off the page.

Although ThunderScan has lower resolution than most other page scanners, its ten-to-one price advantage has made it the most popular Mac digitizer. Because of this–and because using the other models requires little instruction–ThunderScan is the only scanning digitizer I'll be discussing.

MacVision: Equipment

Like all video digitizers, MacVision requires a video source–in most cases a standard color or black-and-white camera (see Figure 2). The video connector on MacVision is the RCA phono type, but most cameras for home use are equipped with special 10- or 14-pin connectors and derive power from the VCR. Therefore, you must either operate the camera with a VCR and connect MacVision to the video output of the recorder or purchase a video-camera power supply. The supply serves two purposes: it provides power to the camera, and it separates the audio and video signals from the multipin connector, routing them to individual cables. You connect the cable marked *video* to MacVision.



Figure 1
The ThunderScanner optical reader replaces the ImageWriter ribbon cartridge.

The camera you use greatly influences the sharpness of your digitized pictures. Contrary to what you may think, a costly color camera doesn't produce better pictures than a cheap black-and-white one, since even inexpensive black-and-white cameras have better video resolution than color cameras. Video resolution is often expressed as the number of horizontal lines that make up the screen image; most black-and-white cameras have a horizontal resolution of about 300 lines, whereas color cameras have a horizontal resolution of no more than 250 lines. In addition, black-and-white cameras don't generate a color information signal, which can reduce picture sharpness.

Prices for black-and-white cameras start at about $200. If you want to use a color camera for digitizing, concentrate on getting one with a high resolution rating. Features such as automatic focus and stereo sound have nothing to do with image resolution but add a great deal to price. The size of the image pickup device used in the camera and the quality of the lens are also important. The image pickup should be at least ½ inch–⅔ inch is even better.

In general, the smallest area most video-camera zoom lenses can focus on is 5 by 7 inches. If you plan to digitize smaller objects, you need a set of close-up lenses. Available at photography stores, these lenses screw onto the front of your regular lens. They come in sets of three or four magnifications, and you can combine lenses to further increase the magnification. Close-up lenses can focus on objects as small as about 3 inches square. To digitize pictures or objects smaller than that–stamps or coins, for instance–you need a macro lens.

Since MacVision takes from 5 to 25 seconds to scan a single image, a tripod is necessary to steady the camera during the exposure. Invest in one that's large enough to hold the weight of a video camera.

For digitizing pictures, drawings, or other flat media, use a copy stand to ensure even lighting across your subject. A copy stand is nothing more than a small table with a lamp on either side that swivels for adjustment. Some professional copy stands have a built-in camera mount, but a tripod works as long as you can get the camera in close enough.

For best results position the camera directly above the picture. If the camera is at an angle to the artwork, the image may be distorted. Place the lamps on either side of the art at 45-degree angles, making sure that an equal amount of light from each lamp falls

What's New in Scanners

High-resolution scanners are starting to make their presence felt in the Mac market, and no less than six companies are selling both image and optical character-recognition (OCR) scanners. Most of the scanners use a paper-feed roller mechanism to scan the page, though a few are flatbed-type scanners, which work like a copier—a sheet of paper is placed on a glass plate, and the imaging hardware reads the page from top to bottom. Many of the scanners read images at resolutions from 75 to 300 dots per inch (dpi), and almost all allow up to 16 levels of gray, which augment the contrast level of the scanned image.

The most important consideration in purchasing a scanner is the software that manipulates the scanned image. Many scanners scale images and scan halftones (printed photos) and line art (drawings). They should also be able to store image data in a number of formats, including *MacPaint,* PICT, PostScript, and *PageMaker*. Keep in mind that since the data for a complex, full-page image scanned at 300 dpi can take up more than 1 megabyte, you'll require a mass storage device to store the scanned images.

Microtek

Microtek International was the first developer of a high-resolution page-feed scanner for the Macintosh, introducing the MSP300 officially in late 1985. A full 300-dpi scanner, the MSP300 includes software that performs all the basic functions outlined previously and can save an image file in a compressed format. One noteworthy feature is the ability to edit an image on the screen at 300 dpi. Microtek is also reportedly working on software that permits OCR scanning of printed documents. While Microtek has been selling the scanner directly and through a limited number of dealers, it has also been a supplier for at least three other companies—Abaton Technology, AST Research, and Knowledge Engineering—that have developed their own software and are marketing the scanner under a different name.

Abaton markets the Microtek scanner under the name Scan 300, and has been selling the product since August 1985. Abaton's software performs the same functions as the Microtek software and allows a wide range of image manipulation, including cut-and-paste operations, rotation, and the ability to store image files in *MacPaint, PageMaker,* and PostScript formats. Abaton is also working on OCR software for the Scan 300. At press time Abaton was planning to incorporate a Ricoh scanner into its product line.

Bill Bates of Knowledge Engineering also sells the Microtek scanner under the MSP300 name, but with his own *LaserScan* software. The software has excellent imaging capabilities and makes a good fit for people who use Knowledge Engineering's *JustText* page composition software.

AST Research plans to sell the Microtek scanner under the name TurboScan. At present, the AST software is similar to the Microtek software, though the company plans to include many of the additional features offered by the Abaton software. AST is also interested in providing OCR software in the near future for its scanner.

Datacopy

Datacopy from Mountain View, California, offers two scanners for the Mac, the Jetreader and the Model 730. The Jetreader is a paper-feed scanner that comes with a sheet feeder that holds up to ten sheets of paper. The scanner includes *MacImage* software that stores an entire page of graphics with a maximum resolution of 300 dpi. The Model 730 is a flatbed scanner and performs both OCR and image scanning via its *WIPS* integrated text and graphics software.

Princeton Graphics

Princeton Graphics, which made its name with high-quality monitors, has entered the scanner market with the LSP300, a paper-feed scanner that feeds up to five pages automatically. What's interesting about the LSP300 is that it was originally intended to be an IBM PC scanner; a company named New Image Technology convinced Princeton Graphics that the Mac provided a large potential market for its product. As a result, the LSP300 will be offered with a board and software developed by New Image that will allow it to interface with the Mac. It looks like New Image will probably market the Mac version of the scanner, though Princeton Graphics might offer the scanner without an interface board.—*Rick LePage*

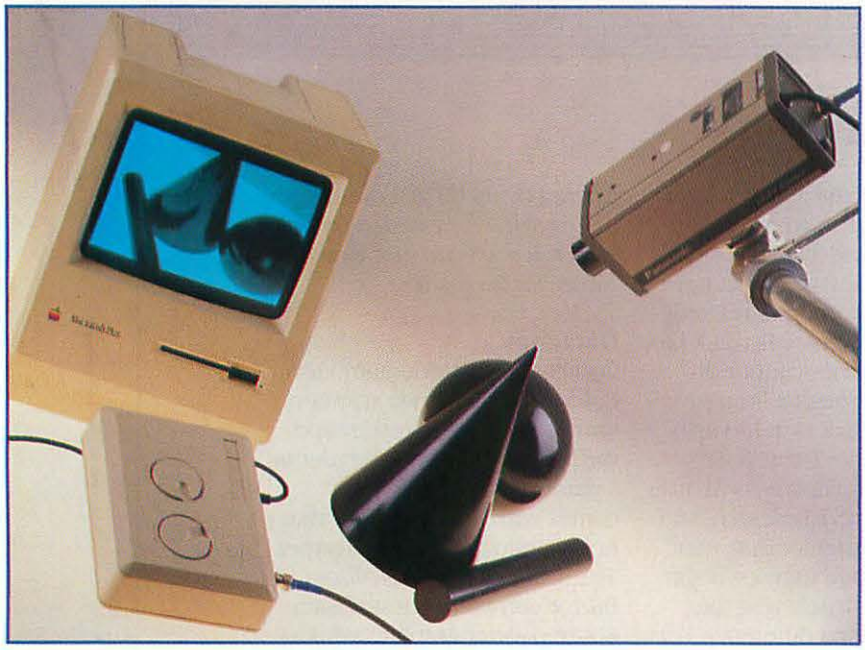


Figure 2

Portable cameras with multiple-pin connectors cannot attach directly to the MacVision digitizer. You can use a videocassette recorder as a power supply and signal source by connecting the camera cable to it. Route a video cable from the video-out terminal on the VCR to the video input of MacVision.

on the original (see Figure 3). You can test the evenness of the illumination by digitizing a piece of medium-gray art board. Adjust the lamps if the pattern is uneven.

Digitizing three-dimensional objects is more difficult than capturing flat ones because the lighting requirements are more stringent. Assuming your subject stays still long enough for the scan, you should light the scene using conventional studio portraiture techniques (see Figure 4). You may find it easier to take a picture with a still camera and electronic flash and then digitize the print.

In addition to lamp placement, the intensity of the light is another critical consideration. Inadequate lighting impairs picture resolution. Some cameras have a light-level indicator in the viewfinder. If yours has one, try to keep the indicator in the middle region. Too much light is even worse than not enough. Excessive light levels can damage the photosensitive coating in cameras that have tube-type pickups.

If you notice that an image smears when the camera is moved, reduce the light level by moving the lamps further away from the subject. If you find you need to move the lamps for each new scan, plug the lamps into a dimmer circuit; that way, you can turn the dimmer control to achieve the correct light level.

MacVision: Exposure

The toughest part of using the MacVision digitizer is setting the brightness and contrast levels. The MacVision software displays an adjustment gauge; you rotate the brightness and contrast knobs on the MacVision unit until the wavy line is spread evenly across the gauge. It's important to remember that the gauge provides only a rough estimate of the contrast and brightness settings. You must fine-tune the picture for each new scan.

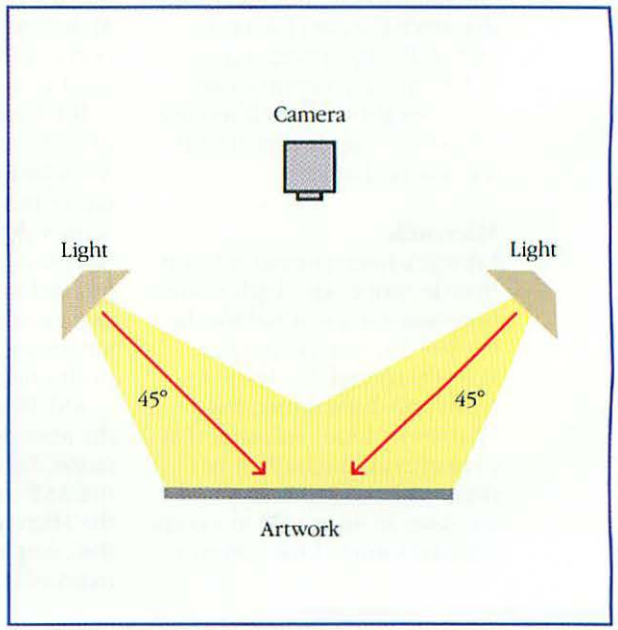
Color pictures, especially from magazines or books, are usually low in contrast. Even if the gauge registers a perfect balance of contrast and brightness, the image may appear dull and grainy on the Mac screen. During scanning, slowly rotate the brightness and contrast knobs on MacVision until the picture improves. The contrast and brightness controls work together, so you have to adjust them alternately.

You can determine "base" brightness and contrast settings by using a *gray-scale card,* available at most photography and graphic arts stores. The scale shows a series of tones from black to white. Place the card in front of the camera so that the black strip is on top. Select the Adjust command and turn the brightness and contrast controls until the line appears as an even stair step. Replace the card with the image you want digitized and touch up the controls as needed.

Once the image has been successfully scanned, you can save it to disk or select only a portion to cut and paste into a document. The MacVision software

Figure 3

Digitize two-dimensional originals by placing them on a copy stand or a table. Aiming the lights at 45-degree angles to the table minimizes glare and spreads the light evenly across the original.



works as a desk accessory, so it can be used with any application that supports them.

Special Effects with MoreVision

Included with MacVision is MoreVision, a stand-alone program that greatly extends the usefulness of the digitizer. You can choose from a variety of effects: Threshold, Thick & Thin, Dither, Patterns, Zebra, Contour, Trace Edge, and Random. Most of the variations produce wild, impressionistic special effects, but some are useful (see Figure 5).

When experimenting with the various MoreVision effects, you have to change the contrast and brightness settings. In general, boost both contrast and brightness when you use the Zebra, Contour, and Trace Edge commands. I've found that decreasing the contrast and brightness settings yields the best results when using the Threshold, Dither, and Random effects.

Rolling Thunder

ThunderScan doesn't require that you set up a camera or lights, so it's fundamentally easier to use than MacVision. But getting a good scan isn't always simple. The process is time-consuming, being limited by the speed of the ImageWriter print head: It takes approximately 20 minutes to scan a full 8- by 10-inch document. And problems aren't always apparent until well into the digitizing process, which forces you to make more than one scan to get a picture. Learning to use ThunderScan right the first time will save you time and frustration.

ThunderScan scans its way through an image line by line. Because the scanner uses the edge of the paper as a guide to tell it when to start reading each line of the image, you can improve your scanning accuracy by using the ¼-inch-wide white sensing tape supplied with the ThunderScan unit. As the manual explains, you apply the tape around the left edge of the platen. What the manual doesn't say is that it's important to make sure that the edge of the tape exactly matches the edge of the platen. A variance of even 1/100 inch can decrease the quality of the scan, because it can throw off the line-by-line alignment by one or two pixels. Periodically inspect the tape and replace it if it's peeling or soiled.

The ThunderScan optical assembly projects two pinpoint beams of red light that are reflected by the paper and sensed by a photodetector. The photodetector, however, is also sensitive to the infrared content of an incandescent lamp and to visible light. To avoid misscanning, turn off or deflect any bright lights around the ImageWriter when ThunderScan is in use.

The size, weight, thickness, and coating of the paper on which your original is mounted or printed have an important effect on the quality of the digitized image. Obviously, you can't scan anything too large to fit in the ImageWriter. If the original is too big, reduce it to a more manageable size using a photocopy machine capable of reduction. Or you can take a black-and-white photo of the original and make an 8- by 10-inch print (untextured matte paper works best). By the same token, small pieces of paper don't feed smoothly through the printer mechanism. Mount artwork smaller than about 5 inches square on a larger piece of paper, or make a copy of the original and scan the copy.

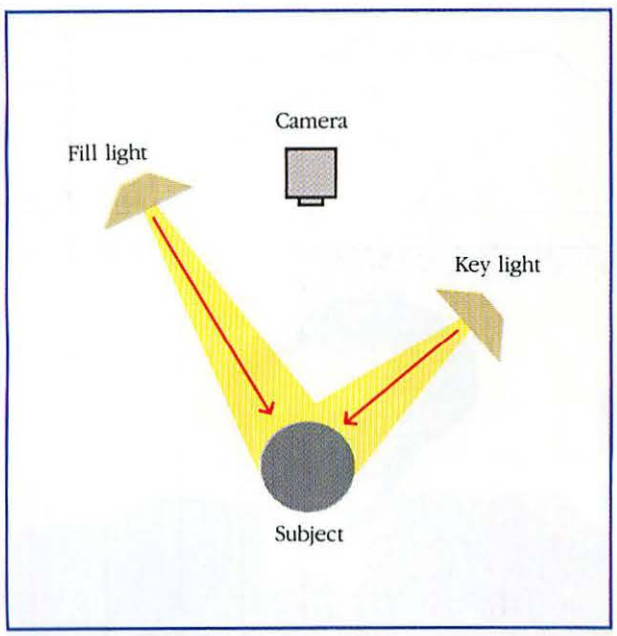
If your original skews to one side during scanning, the paper may be too thick or too thin to feed properly through the ImageWriter. Solve this problem by making a copy on plain bond paper and digitizing the copy. Use the same procedure for originals printed on glossy or slick paper, which can slip through the platen and cause uneven scanning. Originals that can't be photocopied successfully should be taped to the back of a sheet of overhead transparency acetate. Then digitize the image through the clear plastic film.

The ThunderScan Exposure

A number of factors contribute to the quality of a ThunderScanned image. For example, ThunderScan has trouble reproducing vertical lines—they often come out jagged. If your original has many vertical lines, feed it through the ImageWriter sideways, if possible.

Figure 4

Simplified studio portrait lighting consists of two lamps positioned on either side of the camera. The key light is placed closest to the subject, so its light is brighter. This light provides the three-dimensional modeling required for depth. The fill light is placed farther away but closer to the camera's optical axis and is used to fill shadows.





ThunderScan works best with the bidirectional configuration option turned off and edge sensing turned on. If the original image is small enough, enlarge it to scan, then reduce it to print. You can obtain better-than-average results by scanning at 200 percent and printing the result at 50 percent. The final printed image ends up with the same dimensions as the original (see Figure 6).

Unless the image to be digitized is very small, you should always do a sample scan to test the software settings and printer alignment. Choose an area within the image and scan about 10 to 20 lines. If the image looks good, roll back to the start and begin scanning.

ThunderScan includes a feature called *gray map* that enables you to control the relative or overall tonal values within an image. As long as the gray-map option is turned on, you can make contrast, brightness, and gray-map filter changes any time after scanning is complete. You can transform dark gray into light gray or black into white, and so forth. Always keep the

Figure 5

Interpretations of the photograph at left created using MoreVision's Threshold, Trace Edge, Custom, and Thick and Thin utilities (moving clockwise from upper to lower left). Try using these utilities to create interesting effects. For example, you can build up a posterization by making a variety of exposures using Trace Edge, filling in the images with MacPaint *patterns, and then stacking the exposures in* MacDraw (MacPaint *images are transparent in* MacDraw).









ThunderScan file that contains the gray-map information until you are sure the scan is exactly as you want it: You can't make changes once the gray-map information is gone.

Sizing

Digitized images are treated by the Macintosh as *MacPaint* pictures, so you can cut and paste them into any application that accepts bit-mapped graphics. However, avoid resizing images after pasting them into a document, because stretching or shrinking a digitized picture creates gross distortion. If an image must be of a specific size, digitize it to the proper dimensions in the first place.

You can check the sizing of a MacVision image by using the Coordinates program, included in *Accessory Pak 1* from Silicon Beach Software, or any similar desk accessory. To adjust the size of a MacVision image, use the camera's zoom lens or move the camera in or out. If the dimensions provided by your sizing desk accessory are in pixels, divide by 72 to convert to inches.

The Art of the Digitizer

Mastering a Macintosh digitizer requires willingness to experiment. Once you have conquered the basics, try different lighting or camera placement techniques; a slight variation can make a big difference. Keep notes so you can duplicate your results.

A small assortment of photographic accessories can turn you into a special effects wizard. When using MacVision, for example, you can attach colored filters to the video camera to alter the rendition of the tones in the digitized image. Adding a red filter accentuates the reds in the original while reducing the brightness of greens. You can achieve similar results by placing colored gels in front of the image when using ThunderScan.

Other ideas: Try moving the camera or its subject when digitizing with MacVision. Or make several scans of an image with different contrast and brightness settings and then superimpose them. With a program like *MacTracks* or *Tempo,* you can use *MacPaint* or another drawing program to "trace" a digitized image. Use the program's drawing tools to create a completely new picture.

If you're considering buying a digitizer, be aware that ThunderScan and MacVision have their own strengths and weaknesses. (For a comparison of ThunderScan and Mac video digitizers, see "Pictures to Pixels," *Macworld,* April 1985.) In the end, a choice between digitizers comes down to personal taste and the applications you have in mind. □

See *Where to Buy* for product details.

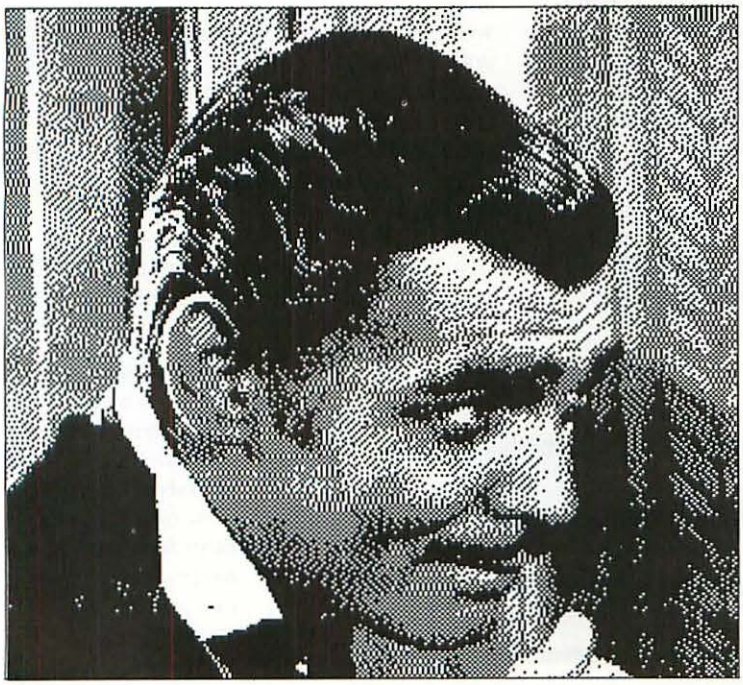




Figure 6

Smoothing an old smoothy: Gable's complexion was improved by ThunderScanning the image at right at a 200 percent enlargement and then reducing it by 50 percent for printing. This technique multiplies ThunderScan's resolution by a factor of four. However, it limits the size of the image you can scan to a half page, and the maximum printed output to a quarter page.

Reviews

Apple Pulls a Fast One

HD-20SC

20-megabyte hard disk. ***Pros:*** *Uses fast SCSI interface; relatively easy to daisy-chain; has Apple logo; stacks under Mac.* ***Cons:*** *Noisy; somewhat smaller capacity than most 20-megabyte drives; expensive.* ***List price:*** *$1299.* ***Requires:*** *Mac Plus or 512K Mac with SCSI adapter.*

You won't believe you've been using a hard disk drive if you switch from Apple's original Hard Disk 20 (attached to the disk port) to its HD-20SC. Because it attaches to a SCSI port, the new model is much faster. Like the other SCSI hard disk drives available for the Mac, the HD-20SC significantly enhances your system's performance, especially if you use more documents and applications than fit on one or two 800K floppy disks.

The HD-20SC nominally has a 20MB capacity, but it actually gives you somewhat less. The unit tested had 19,111 bytes, a full megabyte or two less than most other drives in its class, though still plenty for most individuals and some small local area networks.

The unit's styling typifies the new look in Apple hardware, matching the Apple IIGS and presumably the next Mac. The biege plastic cabinet looks fine with a Mac Plus; a platinum gray version is also available. The HD-20SC's sleek lines make it look lower-slung than its actual 3-inch height. The cabinet is the same width as a Mac Plus and just an inch deeper, so you can place the drive conveniently under the Mac.

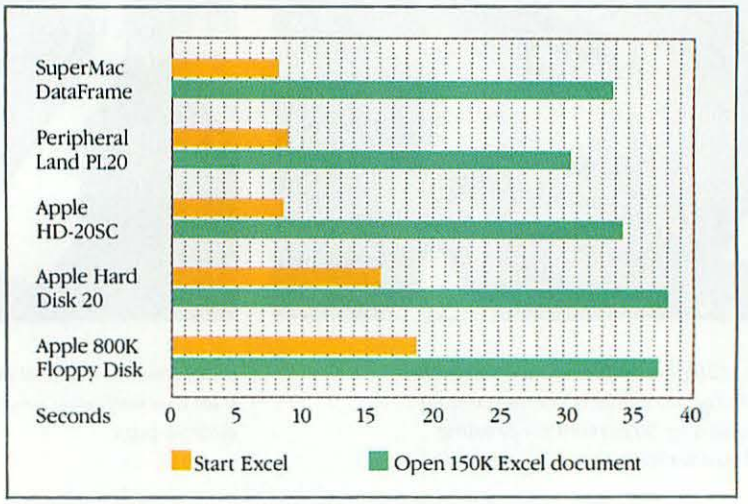
The HD-20SC attaches to a Mac Plus SCSI port with a supplied two-piece cable. The product does not work with a 512K Mac unless a SCSI port adapter has been installed. The drive works on any voltage from 85 to 270 VAC, 47 to 64 Hz. The HD-20SC is noisier than some other drives, specifically the Hard Disk 20, but less noisy than the AST 4000. Apple plans to install a quieter fan than the one in the test unit, so listen to the model you intend to buy before making a decision.

The SCSI port was designed to allow easy chaining of several SCSI disk drives or other devices to the Mac. Each chained device must have a unique priority number. Changing the priority number is a complicated procedure with most SCSI devices; you must open the cabinet and move jumpers on a circuit board. By contrast, the priority number on an HD-20SC appears in a small window on the back of the cabinet. To change the priority number you simply poke a straightened paper clip into a hole below that small window.

Apple avoids another potential complication by using an external terminator that can be detached from the rest of the cable. You remove the terminator if the drive is in the middle of a chain. With most other SCSI devices you must open the cabinet and pry small parts off a circuit board in order to remove termination.

When starting applications and opening documents, the HD-20SC operates at about the same speed as other SCSI drives (see "SCSI Performance"). Because these activities are typical of the things you normally do with a disk drive, they provide a better measure of drive performance than raw read, write, and seek speeds. The raw read, write, and seek times for the unit I tested were slightly faster than the average hard disk.

It's easy to forget where you put one file in the dozens of folders on a hard disk. Apple's hard disk drives now come with the *Find File* desk accessory, which searches the disk for files whose names match your specification. *Find File* lets you go on working while it continues search-



SCSI Performance *The HD-20SC disk drive starts* Excel *and opens a 300K* Excel *worksheet in about the same time as most other SCSI disks, all of which are faster than a disk-port Hard Disk 20 or a floppy disk. In everyday use, a one-second difference is inconsequential.*



Apple Computer's HD-20SC

ing, a convenient feature I haven't seen on other file search utilities. However, *Find File* only locates files; it can't rename, copy, or delete them as other utilities can.

The HD-20SC was completely reliable during the three-week test period, so I couldn't test the included disk-recovery utility on it. But the utility works with floppy disks too, and it did recover one of six unreadable floppies I fed it. This success rate isn't good enough to eliminate the need for regular backups. At press time, Apple was not including a backup utility with its hard disk drives.

As any Macintosh owner knows, the Mac uses the disk drive frequently, so almost anyone can benefit from a faster, higher-capacity disk drive. Apple's HD-20SC, like other SCSI disks, operates much faster than floppy disks or the original, disk-port Hard Disk 20. But there is little, good or bad, to distinguish it from the rest of the SCSI crowd. It's a trifle noisier, has somewhat less capacity, and costs a little more than the average disk; on the other hand, it is easier to chain with other devices, and it alone is genuine Apple equipment. —*Lon Poole*

See *Where to Buy* for product details.

Lose Those IRS Blues

***MacInTax** 1985/1986 version*

Tax preparation. ***Pros:*** *Easy to learn and use; IRS-compatible output; uses Mac graphics.* ***Cons:*** *Passable documentation; occasional weak error-handling; slow printing.* ***List price:*** *Federal version $99, annual updates $45; California version $45, annual updates $25.* ***Requires:*** *128K.* ***Copy protection:*** *None.*

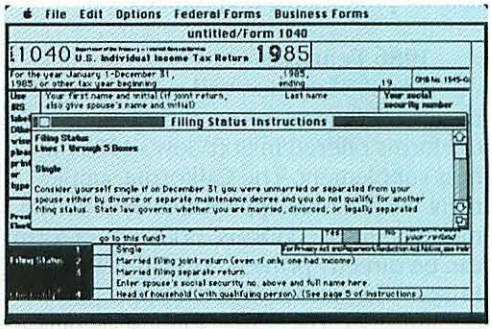


There's a problem with reviewing tax preparation programs that only software reviewers and tax software publishers know about—timing. Because the IRS doesn't provide publishers with all the information they need until late in the preceding year, most products aren't completed until January: just in time for doing your taxes, but not in time to include them in a review. Accordingly, we decided to review this product based on the 1985 version in time for the 1986 tax-preparation season, and to include information about the 1986 version.

SoftView's *MacInTax* is intelligently designed, easy-to-use software that does what it purports to—intuitively. You gather all your tax return information (receipts, W-2 forms, and the like), plug the relevant numbers into the program, and print out a finished tax return. Context-sensitive instructions are available for all forms. Because all the *MacInTax* forms look like the federal and California state versions (see "MacInTax 1040 Form"), you can easily navigate through the form, filling in your tax data as you go. With other programs the correlation between form and data entry sections isn't always as clear.

Data entry is quick and easy. You move from field to field using the Tab or Return key, back up using Shift-Tab or Shift-Return, and move to other parts of a form with the scroll bars. There's also a Menu command, with a ⌘-key equivalent, that lets you jump to any line on the active form. You can display instructions for the current line or section by double-clicking that line or section's text or by pressing a ⌘-key combination.

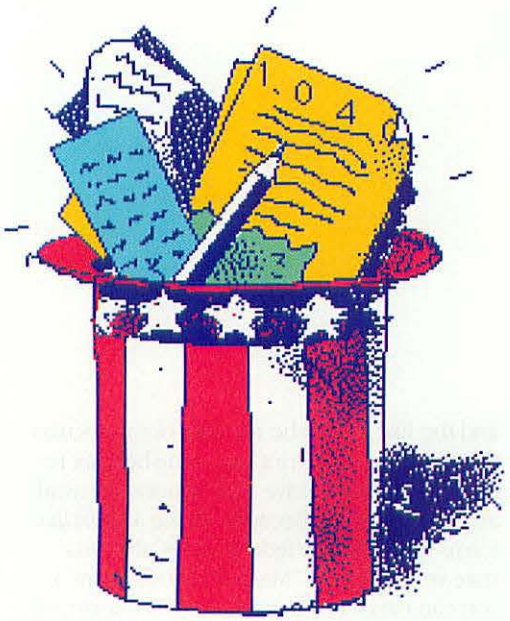
By double-clicking on a particular amount box on the form, you can create a worksheet for entering the underlying details for that amount. For instance, instead of entering your total wages on a 1040, you can double-click on the total wages box. Then a



MacInTax 1040 Form

Each MacInTax *form looks like the official government version, simplifying data entry. Instructions can be displayed at any time for the current section by double-clicking the section's text or pressing the ⌘ key.*

PHOTOGRAPHS BY FRED STIMSON



separate window pops up to let you record multiple entries for wages. When you close that window, the program automatically adds the numbers and links the grand total to the form. You can use this feature to track all your supporting tax information, in preparation for an audit.

MacInTax globally updates your return as you enter amounts. For instance, once you've completed Schedule A, Itemized Deductions, that grand total is transferred to Form 1040. The program goes to great lengths to absolutely minimize the amount of work you have to do. Typically, if you've collected and organized all your tax information, you can complete a five-page tax return in less than ten minutes. Printing will probably take longer (an average of three minutes per page on a LaserWriter, probably unsuitable for professional tax preparers).

1986 Features

The 1986 version will support approximately 28 federal forms, including most of the forms offered in SoftView's 1985 business supplement. The California supplement will include approximately 15 of the most widely used forms. Both sets of forms can be directly printed on a LaserWriter or ImageWriter and sent to the appropriate tax authority. There's no fooling around with aligning preprinted forms, copying numbers from printed reports to the tax forms, or dealing with photocopy overlays. Every other consumer-oriented tax program I've seen uses one or more of these cumbersome methods.

The new version will also have an import interface so you can paste numbers from any program that can export a text file. This means you can use *MacInTax* with your favorite accounting or personal-finance program, substantially reducing the amount of information you must enter manually. The program will include a way to transfer information directly for *Dollars & Sense* users, one of the more popular Mac personal-finance packages. Unlike the current version, 1986's *MacInTax* will be HFS compatible.

Although the documentation is less than outstanding, and the noncritical error-handling a bit weak at times, *MacInTax* does taxes the way they should be done—quickly, easily, and simply. Writing the check is tough enough—every effort to reduce the aggravation of tax preparation is welcome, as far as I'm concerned. I use *MacInTax,* and quite frankly, I can't imagine springtime with the IRS without it.
—Steve Mann

See *Where to Buy* for product details.

A Beautiful Duet

MIDI Mac Sequencer 2.5

MIDI music sequencer. ***Pros:*** *Multiple sequences can be rearranged easily; imports and exports to other music programs in SMUS format; "generates" sequences for arpeggio effects.* ***Cons:*** *No access to raw MIDI data.* ***List price:*** *$250.* ***Requires:*** *512K, MIDI interface with cables, MIDI synthesizer.* ***Copy protection:*** *Not copyable; two retrievable hard disk installs.*

Deluxe Music Construction Set 2.0

Music display/playback. ***Pros:*** *Flexible editing abilities; excellent music printing with Adobe's* Sonata *laser font; imports and exports to other music programs in SMUS format; sophisticated internal voice editor.* ***Cons:*** *Music printing and display limited to eight staves.* ***List price:*** *$99.95.* ***Requires:*** *128K.* ***Copy protection:*** *Key disk.*



Several music design and printing programs are available for the Mac, but exchanging files between programs can be a problem. Fortunately, SMUS (simple music information format) is being developed as a new standard data structure for music applications, to allow music files to be shared in the same way as text and graphics. As more music programs are introduced, musicians will be able to choose software they like, yet share their music with people who prefer other programs.

New versions of Opcode's *MIDI Mac Sequencer* and Electronic Arts' *Deluxe Music Construction Set* are the first programs that can directly exchange files using the SMUS format. *MIDI Mac Sequencer* uses a musical instrument digital interface (MIDI) to sequence compositions and has excellent arranging capabilities. *Deluxe Music Construction Set* is an integrated notation/player program that prints music effectively. Both programs are well developed, although they do not provide the most advanced features available.

MIDI Mac Sequencer

Opcode's *MIDI Mac Sequencer* directly imports and exports files in *Deluxe Music Construction Set,* Mark of the Unicorn's *Professional Composer,* and SMUS format. Instead of having to set a composition from beginning to end, musicians can assemble and reassemble blocks of music freely with *Sequencer.* This permits a modular rather than a linear approach. The program's song files hold up to 26 different pieces of music, each of which can be a complete song or a segment of a larger piece. You enter music in any of three ways: play it on a MIDI keyboard in real time; precisely note it in step time; or build it in an intriguing *generated* mode. In generated mode you can play music backward or forward, generate notes randomly, and create stunning arpeggio effects.

The main screen is topped by the Status bar, which displays and controls global parameters, such as tempo. The Sequence window gives access to the 26 sequence slots. After you select a slot and a record mode, a window appears that reveals the details of that sequence, and the Control window pops up, reflecting the record mode selected.

A sequence is built up from tracks, each of which is assigned to any of the 16 standard MIDI channels. The tracks can be of different lengths, and different loop lengths can be defined. Recording a few sequences will show you the power of *Sequencer*'s arranging ability.

Since each sequence can be initiated from the Mac keyboard, you can try differ-

ILLUSTRATIONS BY MARK ULRICH

ent arrangements "on the fly." You can also call and trigger sequences from the musical keyboard, and record the sequence calls themselves into empty sequence slots to save different versions inside the song file.

MIDI Mac Sequencer has one significant weakness—it does not permit access to the actual recorded MIDI data. The parameters of a note cannot be changed except by rerecording a portion of the track it is on. *Sequencer's* forte is its flexibility in building a piece, not fine-tuning a particular performance.

Deluxe Music Construction Set

Deluxe Music Construction Set (DMCS) can display and play music using its internal voices or external synthesizers. Its outstanding feature is its ability to print music. *DMCS* can use the new PostScript music font from Adobe, called *Sonata,* which provides excellent symbols.

You enter music into a Score window, select notes and rhythms from a Note palette, and place them with the mouse. The Score Setup window controls the overall design of your score (see "Golden Slumbers"). Text entry is simple and flexible; music can be imported and exported in SMUS format (though lyrics and text are left behind).

Using a MIDI synthesizer to play music is as simple as assigning an internal voice to a staff. The Sounds menu operates similarly whether it is set for Mac sounds or MIDI transmission. Although the internal voices are acceptable, they improve greatly when played through an external speaker, and new ones can be made with *DMCS's* powerful—though complicated—voice editor.

Is It a Take?

Both programs have limitations. *MIDI Mac Sequencer* is straightforward and extremely flexible, but it keeps you a level removed from the raw data. *DMCS* can lay out attractive scores, but it has an eight-staff limit, so don't try to print a symphony. Nevertheless, *DMCS* is a bargain for the price.—*David Barnett*

See *Where to Buy* for product details.

A Pair of Digitizing Tablets

Macintizer

Digitizing tablet. ***Pros:*** *Easy to set up and use; no system configuration required; uses stylus or four-button puck; on-line mouse.* ***Cons:*** *Single-button stylus increases wear and tear on tablet surface; button placement on puck requires two-handed operation for digitizing.* ***List price:*** *$399.* ***Requires:*** *128K.*

MacTablet 3.0

Digitizing tablet. ***Pros:*** *Two-button stylus; work area can be set to three sizes; accurate to within .005 inch.* ***Cons:*** *Requires configuration; digitizer must be connected to printer or modem port.* ***List price:*** *6 by 9 tablet $449; 12 by 12 tablet $599.* ***Requires:*** *128K.*



If you want to trace a drawing and capture the results in *MacPaint, MacDraw,* or some other graphics program, the Mac's trusty mouse is not the ideal input device. A digitizing tablet makes it easier to trace an image, and a stylus is a more natural drawing tool. If graphics software allows you to calibrate the tablet, you can have an exact correspondence between the cursor location and your working position as you draw or trace.

Under mouse control, the cursor doesn't move unless you slide the mouse across a continuous surface. Digitizers, however, use a pencil-like stylus or a puck to position the cursor, which is represented on screen by cross hairs. The cursor stops moving when the stylus or puck is lifted off the digitizing tablet, but wherever the device touches down, the cursor follows.

Digitizing tablets are available in sizes ranging from about 4 by 4 inches to the dimensions of a professional drafting table. Professional tablets are accurate to within .001 inch; larger units often have the digitizing puck mounted on a mechanical drafting arm to ensure accurate movement.

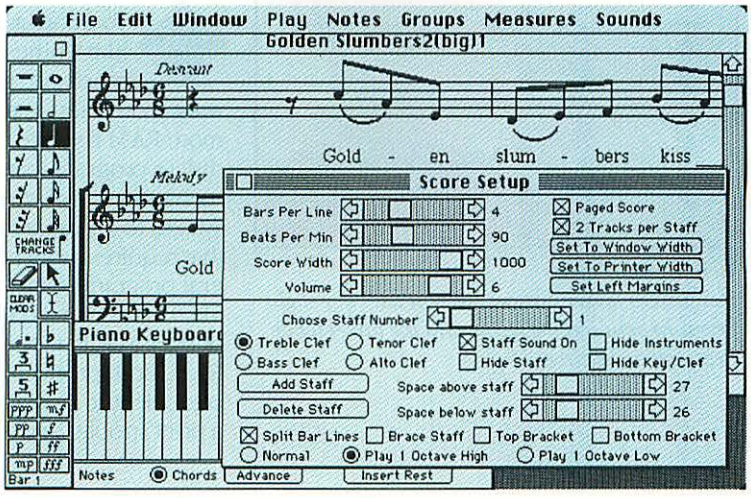
Macintizer

GTCO's tablet measures 15½ by 18 inches and tapers from ⅜ inch in the front to about ⅞ inch at the back. The top third of the tablet is reserved for storing your keyboard—making it easily accessible to the digitizing tablet.

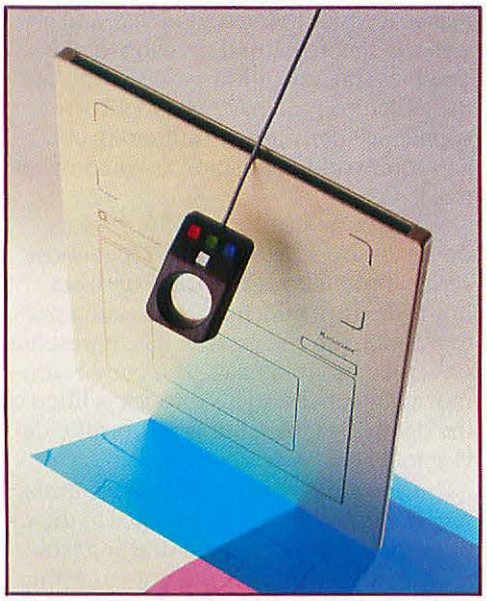
Macintizer has no special system requirements. All the tablet connectors are on the back edge, so the tablet takes up very little vertical space above your work surface. You can attach either a stylus or a four-button puck, and a separate port is provided for connecting the mouse (see "Four-Button Puck"). Moving the puck or stylus off the digitizing area activates the mouse, while moving the stylus or puck back to the digitizer puts you in tablet mode again.

Macintizer requires practically no configuration. To set up the tablet, select the Control Panel from the Apple menu, then set Mouse Tracking to "0" and Double-Click Speed to "Slow." Switch off the Mac, plug in the Macintizer power supply, connect the cables, turn on the Mac, and you're up and running.

The stylus is a one-button device that you click by pressing it against the tablet. When you stop pressing, a spring "unclicks" the switch. To drag, press down, move the stylus, and relax the pressure.



Golden Slumbers
The screen of Deluxe Music Construction Set, *showing the Score and Score Setup windows and the Note palette at the left.*



Four-Button Puck
To accurately trace with GTCO's Macintizer, *align the cross hairs over an image and press a button to move the puck.*

GTCO's puck is a professional four-button device with a large viewing window and clearly visible cross hairs. It's effective when very accurate tracings are required.

One of the two work areas is the same size as the Mac's screen, and the other is about 30 percent larger. Drawings traced from the larger area are reduced to 60 percent, but you can make full-size tracings by using the "same-size" work area. Each work area has a selection box on the tablet's surface. To switch work areas, click the stylus (or press one of the puck buttons) over a selection box.

MacTablet

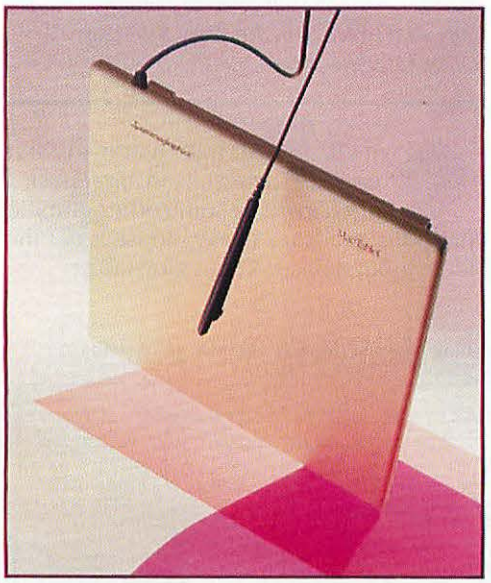
Summagraphics' MacTablet has a 12 by 12 work area. An adjustable bracket lets you tilt the tablet toward you. A smaller version (6 by 9) is also available, and the four-button puck works with either tablet.

MacTablet must be configured or installed before it can be used, but the procedure is straightforward. After the hardware is set up and connected, insert the MacTablet disk and double-click its icon to bring up the installation program. A dialog box leads you through a set of options (port, disk type, and units). The next dialog box asks you for a destination volume; then you click Install. Since the tablet is installed as a desk accessory, you must access it from the Apple menu—a problem with graphics programs such as *ColorPaint* and *OmniPaint* that don't display the Apple menu.

At press time, several problems were apparent. ImageWriter Driver version 2.3 is incompatible with MacTablet software. A 128K Macintosh system may crash (non-destructively) if *MacTablet* is started and stopped more than twice. If you use the Finder 5.0 or 5.1 with MacTablet, you may crash your system and corrupt your disks. The product does not work on the Macintosh XL, but the tablet is compatible with some hard disks.

The excellent stylus has two switches: one inside it that clicks when the stylus is pressed against the tablet, and another that is activated by a button on the side of the stylus. The finger button works just like the internal switch but without pressure against the tablet (see "Two-Switch Stylus"), which makes tracing or drawing a "light touch" operation. The stylus is MacTablet's strongest feature; you can drag lightly over the drawing you're tracing without making an imprint on it.

Three work-area scale sizes are available: 0.5:1, 1:1, and 1.6:1 (the relation is tablet area:screen). Scaling allows you to enlarge or reduce images to fit your screen. In addition, you can drag the work area, or *viewport,* around on the tablet. This feature allows you to tape a drawing to the tablet and then move the work area under the image for tracing; the alternative is to tape the drawing over a fixed work area. To scale or move the tablet's work area, pull down the Apple menu, click MacTablet, and make the changes to the dialog box.



Two-Switch Stylus
MacTablet's *finger button lets you use very slight pressure between the stylus and the tablet while drawing or tracing.*

Making the Choice

Both digitizing tablets give architects, artists, and other graphics professionals greater control for drawing and tracing and a more natural drawing tool than the mouse. If you are looking for a "plug and play" product, Macintizer will suit you. MacTablet has an excellent stylus and a slight edge in versatility, but several steps are required to start or stop the tablet, and you must be sure that your current hardware and system software are compatible with it.—*Ken D. Schmeupe*

See *Where to Buy* for product details.

Taking Your Plus to the Max

One + One

Memory upgrade. ***Pros:*** *Clear installation documentation.* ***Cons:*** *Difficult to reinstall the motherboard.* ***List price:*** *$395.* ***Requires:*** *1MB.*

MaxPlus

Memory upgrade. ***Pros:*** *Comes with print spooler and RAM disk.* ***Cons:*** *Documentation for self-installation is weak.* ***List price:*** *$499.* ***Requires:*** *1MB.*



To quote a great author, "RAM is like Chinese food: no matter how much you get, a half hour later you want more." You may find yourself hungry for more RAM if you're trying to set up a RAM disk (a program that uses part of the extra memory as an electronic disk drive) or cache system to enhance speed, run an application that requires more memory, or combine several programs with *Switcher.* MacMemory's MaxPlus and Levco's One + One feed your hungry Mac Plus one more megabyte of RAM. Both products come bundled with piezoelectric fans. The MaxPlus also includes a print spooler and a RAM disk. The issues to

consider with these upgrades are simple: how easy are they to install, and once properly installed, do they work?

Installation

Both companies expressed the belief that owners could install the upgrades themselves. But unless you are technically minded or have opened your Mac before, you may want to have the dealer install the upgrade. With that warning in mind, here are some of the problems I had installing the boards.

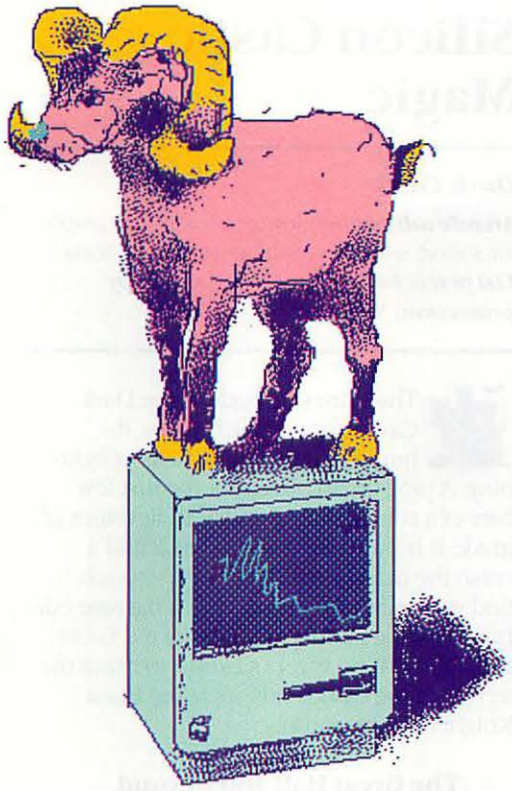
The installation instructions in the MaxPlus documentation do not clearly explain the process of disassembling and reassembling the Mac, whereas the Levco documentation covers the entire process more completely. Neither company includes the necessary tools for opening the Mac. Both offer a special screwdriver separately but not the splitter needed to separate the back cover. Don't be surprised if it takes a while to work the cover off with a ruler.

Once inside, beware: neither manual provides an illustration that shows the dangerous areas inside the Mac. The documentation mentions that you shouldn't touch the back of the monitor. Take that advice seriously, unless you want to truly feel the power of the Macintosh Plus.

You may also find that it takes a delicate touch to maneuver the power/video cable and fasten the jumper clips (little clamping fishhooks that might as well have been designed for a neurosurgeon) off and on, respectively. I had some difficulty fitting the Levco-enhanced motherboard back into its place. The MaxPlus was smaller and slid neatly into place.

The last area of concern is by far the most important: check the power supply level. More memory generally consumes more power, and you may need to readjust the voltage control. If you don't adjust the power supply level when called for, you can expect random system crashes. (If a dealer installs the upgrade, ask to have the voltage control checked.) To measure the control correctly, you must use a digital multimeter.

Some owners reported out-of-the-box failure problems with the MaxPlus, but MacMemory replaces defective boards promptly. One report traced an internal disk drive failure to the mounting of the



MaxPlus fan directly to the drive (the One + One has a velcro arrangement that isolates the fan's vibrations).

Given proper installation, both upgrades worked with no problem, even with RAM-intensive programs such as *OverVue*. The piezoelectric fan that both companies used produced a quiet, low-pitched hum that was quite tolerable. (For reference, it was quieter than Apple's HD 20.)

Bonus Software

MacMemory includes two bonus programs with the MaxPlus: *MaxRAM* and *MaxPrint*. The *MaxRAM* RAM disk meets the standards set by Tony Nelson's *RAMStart*. You can set the program to automatically create the RAM disk and load in a chosen set of programs and documents. The documentation is very clear. *MaxPrint* is an ImageWriter *print spooler* (a program that releases your Mac from the task of printing before the document has actually been printed. Installed as a desk accessory, *MaxPrint* uses available space either on a RAM disk or on any hard or floppy disk. Like most spoolers, *MaxPrint* requires a certain amount of time to build the spooled file (between 25 and 50 percent of the normal printing time). The program allows you to choose a RAM drive to store the spooler file, which is convenient for short files, or lets you choose a floppy or hard disk for longer files; you can also cancel printing. One nice feature of the program is that it estimates how many pages can be spooled on any given drive.

The main problem with both One + One and MaxPlus is proper installation. Otherwise, both products seem well designed and functional, and the fans are quiet. I must admit, two megs go a long way toward forestalling those memory cravings.—*Ben Calica*

See *Where to Buy* for product details.

Below the Mark

***SpellCheck** 2.3*

Spelling checker. ***Pros:*** *Low price; includes total and unique word counters; works on a 128K Mac.* ***Cons:*** *Clumsy correction method; inadequate dictionary; doesn't show words in context; no suggested spellings; no access to dictionary; doesn't recognize apostrophes.* ***List price:*** *$25.* ***Requires:*** *128K.* ***Copy protection:*** *None.*



In the beginning, it was simple. If you wanted a spelling checker, you bought *Hayden Speller*. But now, with more than a dozen spelling checkers available, the choice is not so clear-cut. Wolverine Software's *SpellCheck* is a no-frills, inexpensive checker, but more complete programs are available for just a few dollars more.

Keep Your Dictionary Handy

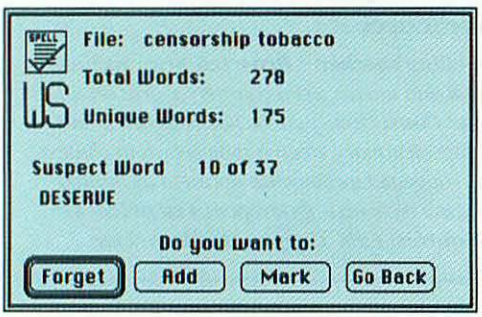
SpellCheck's main dictionary contains only 18,217 words, compared to *MacLightning*'s 31,000 or *Spellswell*'s 60,000 entries. Many words are omitted: you won't find "station," "yellow," "globe," "anger," or even such commonly used but often misspelled words as "restaurant," "vacuum," and "disparity." Users can add their own frequently used words, but are limited to only 1500 additions. It's difficult to remove words you've accidentally added, and you have no access to the main dictionary. Apparently, the ideal *SpellCheck* user is a good speller but an inaccurate typist, with a very limited vocabulary.

Not only is the dictionary incomplete, but the program doesn't offer any correctly spelled guesses. You will probably spend a

great deal of time looking up words in a nonelectronic dictionary. Also, since *SpellCheck* displays only the suspect word, there's no way to tell if it's correct in context.

In one test document of 668 unique words, *SpellCheck* flagged 191 suspects, about two-thirds of which were actually correct; for example, the program highlighted all words with apostrophes. *SpellCheck*'s knowledge of plurals, past tenses, and modifiers is also limited.

Whereas most spelling checkers correct misspelled words while the program is running, *SpellCheck* copies misspelled words to the Clipboard, uncorrected. To make corrections you must quit the program, open your word processor, show the Clipboard, look up any words you're not sure of in a regular dictionary, and then use your word processor's search-and-replace function. Unless both the word processor and document are on the same disk, that means a lot of switching.



Looking It Up
SpellCheck *counts all words in a file as well as unique words. It flags many correct spellings because the dictionary contains only 1900 words.*

Some flaws that would be considered only minor irritations in a better-implemented program are likely to increase your frustration with *SpellCheck*. The program won't let you interrupt the checking process once it's under way.

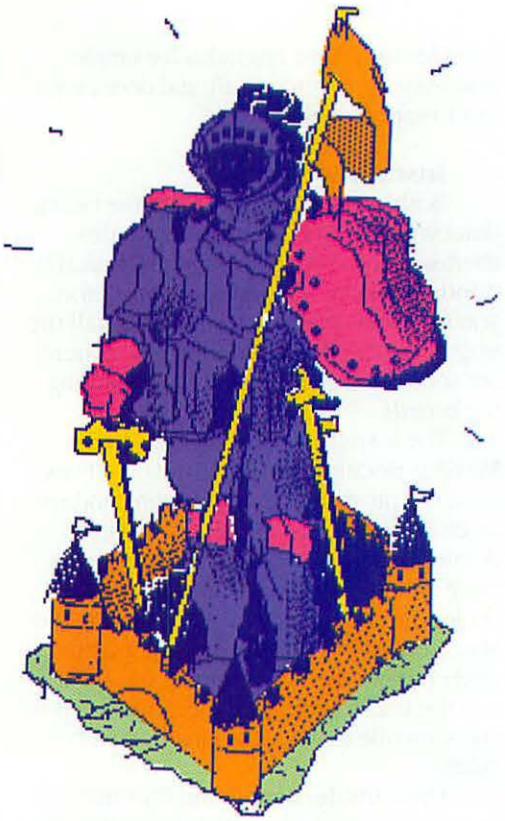
As a $5 shareware program, *SpellCheck* might be useful for someone who doesn't do enough word processing to warrant anything more expensive. But at $25, it's no bargain compared to programs like *Spelling Champion* or *Spellswell* that cost only $15 to $35 more.—*Shel Horowitz*

See *Where to Buy* for product details.

Silicon Castle Magic

Dark Castle

Arcade adventure game. ***Pros:*** *Great graphics, sound, animation, and design.* ***Cons:*** *None.* ***List price:*** *$49.95.* ***Requires:*** *512K.* ***Copy protection:*** *None.*



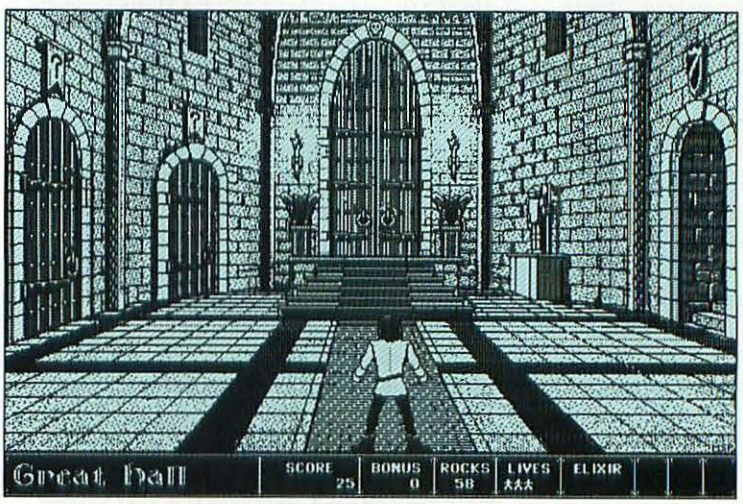
The grim silhouette of the Dark Castle appears before you, illumined by crashing bolts of lightning. A pipe organ blares out the first few bars of a composition familiar to devotees of grade-B horror films. With a creak and a crash the drawbridge falls open, and you find yourself in the center of this massive edifice, standing in the emptiness of the Great Hall. There is no way out except to brave the terrors of the castle and topple the Black Knight from his throne.

The Great Hall and Beyond

Four doorways lead from the Great Hall, and you must pass through all of them to discover the means of escape from the castle (see "The Great Hall"). You select the door of your choice by typing a number from 1 to 4. For example, typing 1 lands you in either the Trouble or the Fireball room. Here you are assaulted by an assortment of plague-ridden rats and bats, crossbow-wielding robots, and the Black Knight's Henchmen. If you manage to survive the perils of the rooms and gather the objects necessary to continue, you will return to the Great Hall. Other doors take you through rooms where eventually you may acquire fireballs and the magic shield. Nothing prevents you from going through the doors in any order, but you must learn the correct way—an audience with the Black Knight if you lack a key, a shield, fireballs, and elixirs can prove very short-lived.

Life in the Castle Perilous

Once inside the *Dark Castle* you move your character by single-stroke keyboard commands, which consist of Up, Down, Left, Right, Duck, Jump, and Acti-



The Great Hall
From here many adventures begin . . . but few are completed.

vate. The default key settings for these functions are set up for a right-handed player but are easily reassigned. The mouse is used to aim and throw rocks or fireballs. It will take a while to adjust to the controls no matter how you configure the keys. *Dark Castle* grants you three lives; expect to lose all of them frequently as a novice.

Dark Castle is at its core a shoot-'em-up, duck-'n'-run type of game, but one so finely crafted it deserves a new classification that reflects its fast-paced action as well as its superb animation, graphics, and sound. The game has a humorous aspect as well. If you play often enough, you begin to notice references to popular video games. I especially liked the graffiti on some of the walls and the way the Black Knight repels invaders—he sits on his throne quaffing ale and hurling the lethal empty tankards at his would-be assassins.

Dark Castle provides the highest-quality graphics and sound of any Macintosh game available. Its action is fast and furious, its scripting sublime. I highly recommend *Dark Castle* to any soul brave enough to explore the dark and light of electronic action adventure.—*Ken Goehner*

See *Where to Buy* for product details.

Modern Memories

MacMemories Series *1.0*

Clip art. ***Pros:*** *Artistically rendered.* ***Cons:*** *Average size too large for newsletters.* ***List price:*** *$30 per disk; set of 5 disks $130; set of 13 disks $340; set of 18 disks $450; catalog $5.* ***Requires:*** *128K.* ***Copy protection:*** *None.*



If you put together a newsletter in the olden days, before desktop publishing, you'll remember using books of public domain illustrations, or *clip art.* These pictures, often reproductions of nineteenth-century drawings and engravings, could be pasted into a publication to provide decorative touches. Now state-of-the-art publishers can add old-fashioned art to their publications with the *MacMemories Series* from ImageWorld.

The *MacMemories Series* consists of 13 disks of digitized illustrations culled from turn-of-the-century books, advertisements, encyclopedias, and other sources. Each disk presents a different theme: art nouveau, children, decorations and dingbats, professions, animals, nostalgia, seasons and holidays, silhouettes, borders, tools and machines, plants, transportation, and the wild West. The Catalogue disk includes additional images that represent each category.

Bigger Isn't Always Better

Each *MacMemories* disk contains 30 to 50 images that can be modified in *MacPaint* and pasted into a document created with a word processing or page-makeup program. Many of the illustrations are larger than the *MacPaint* window, which makes copying and pasting a problem. Several programs can help. Ann Arbor Softworks' *FullPaint* lets you copy and paste images as large as 8 by 10 inches. *MacPaint* desk accessories such as MacroMind's *Art Grabber +* or EnterSet's *QuickPaint* also let you copy images larger than *MacPaint*'s drawing window. You can use another auxiliary paint program, Silicon Beach's *Paint Cutter,* to flip, invert, or rotate a large drawing.

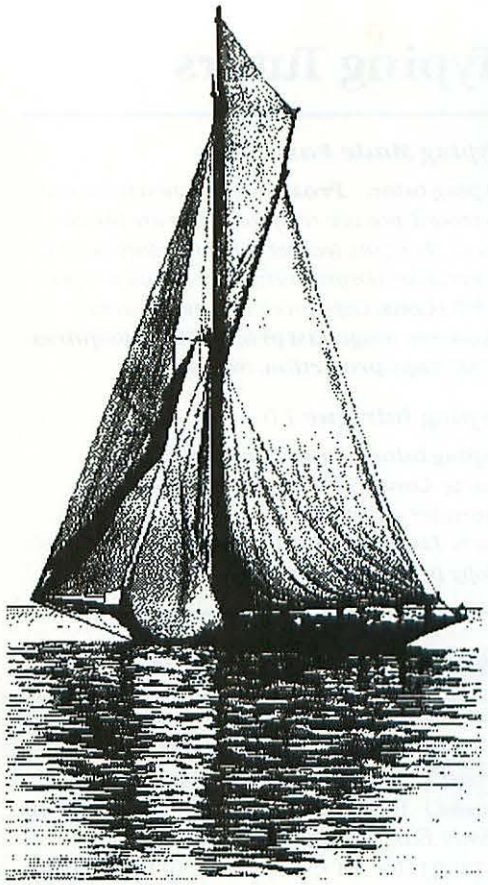
While the copy-and-paste dilemma is easily solved, illustration size is another potential problem: most of the images are at least 3 inches long, and many are too large to be practical as decorative elements. Fortunately, graphics reduced in *PageMaker, MacDraw,* or various word processors retain their proportions and look crisp when printed on the LaserWriter.

On-Line Art

MacMemories disks are sold individually or as a set. In addition, the Speed electronic delivery service lets you download individual images for $2.50 to $7.50 each. An ImageWorld representative informed me that the series will be available in *PictureBase* format and that five new disks are being prepared (see *Macware Reviews, Macworld,* July 1986, for a description of *PictureBase*).

Macintosh clip art is not a new concept. In fact, some of the first Mac software products to appear were disks full of *MacPaint* images. But *MacMemories* adds a new twist to computer clip art by reproducing classic illustrations. Although many other Mac clip-art disks contain skillfully rendered images, their distributors can't boast artists such as Aubrey Beardsley or Frederic Remington. Of course, if you have access to a video digitizer and have the time to scan images and clean them up in *MacPaint,* you can create your own library of noncopyrighted images. But most people don't have these luxuries and must resort to canned artwork. Since a word is only worth 1/1000 of a picture, I'll dispense with the former and refer you to "Memory Lane," which shows a sample image. If you're looking for old-fashioned illustrations, the *MacMemories Series* provides a miscellany of high-quality artwork.—*Erfert Nielson*

See *Where to Buy* for product details.



Memory Lane
The MacMemories Series *offers reproductions of antique drawings and engravings in a variety of styles. The sample shown here is from the Memory Lane disk.*

Typing Tutors

Typing Made Easy *1.0*

Typing tutor. ***Pros:*** *No temptation to look at keyboard; positive reinforcements are liberal; menu shortcuts; teacher/administrative report generation. (Dvorak version available in April 1987.)* ***Cons:*** *Copy protection may restrict classroom usage.* ***List price:*** *$59.95.* ***Requires:*** *128K.* ***Copy protection:*** *Not copyable.*

Typing Intrigue *1.0*

Typing tutor. ***Pros:*** *Playful approach to typing.* ***Cons:*** *Checks typing proficiency by character rather than by word; limited to six users.* ***List price:*** *$49.95.* ***Requires:*** *128K.* ***Copy protection:*** *Not copyable.*



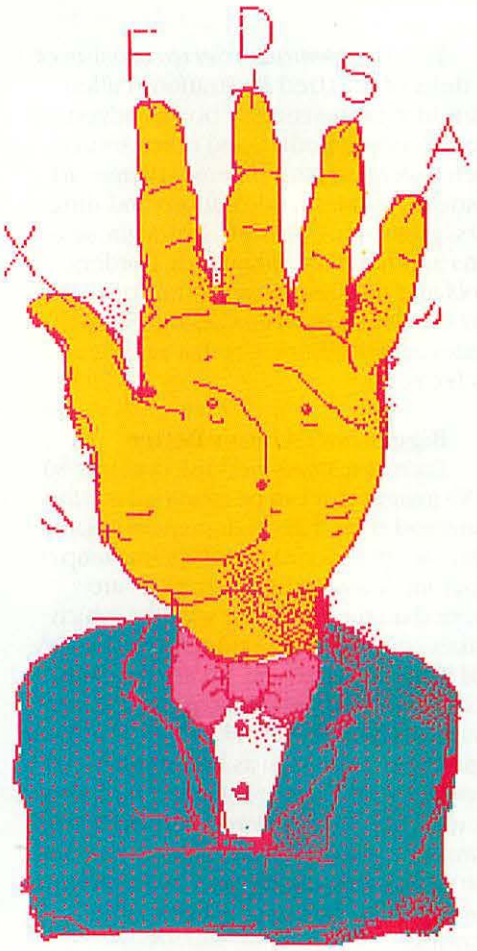


If your snail-paced typing holds back your computer productivity, you might consider two typing tutors: QED Information Sciences' *Typing Made Easy* and Forethought's *Typing Intrigue*. *Typing Made Easy*—a straightforward, professional typing tutor for everyone from the eighth grade up—teaches new skills sequentially, reinforces old skills, and carefully measures your progress. *Typing Intrigue,* designed for home use, takes a more casual approach; for ages 12 and up, this program substitutes workouts and a typing-exercise game for lessons. Unlike the other typing tutors for the Mac (*Typing Tutor III, MacType,* and *MasterType*), *Typing Made Easy* and *Typing Intrigue* provide interactive practice drills that give individualized attention to your typing trouble spots.

Typing Made Easy

This program has an excellent instructional design characterized by six self-explanatory menu options—File, Lesson, Progress, Game, Teacher, and Help. The eight lessons, starting with home-row keys and ending with practice paragraph drills, include short tutorials followed by finger-placement exercises and typing drills. Each lesson concludes with a test, requiring 25 words per minute (wpm) with 80 percent accuracy to pass. You can choose to review a lesson or skip ahead.

Typing Made Easy makes you keep your eyes on the screen, not the keyboard. Practice text, which is too long to memorize at a glance, is displayed without a cursor marking your place—as in real life. Your typing is not displayed until a drill is complete, removing the temptation to backspace and make corrections.



At the end of each drill, the program displays the results, with errors highlighted, along with your speed, accuracy, and adjusted wpm scores. The program grades your typing word by word. *Typing Made Easy* tracks your personal trouble spots and customizes drills to give you more practice on weak keys. The Progress menu allows you to view—or print—a detailed analysis of your typing. Column graphs report your speed and accuracy by finger and letter. A keyboard map shows your weak keys. The program even allows teachers to monitor students' progress when the program is used in a classroom (see "At a Glance").

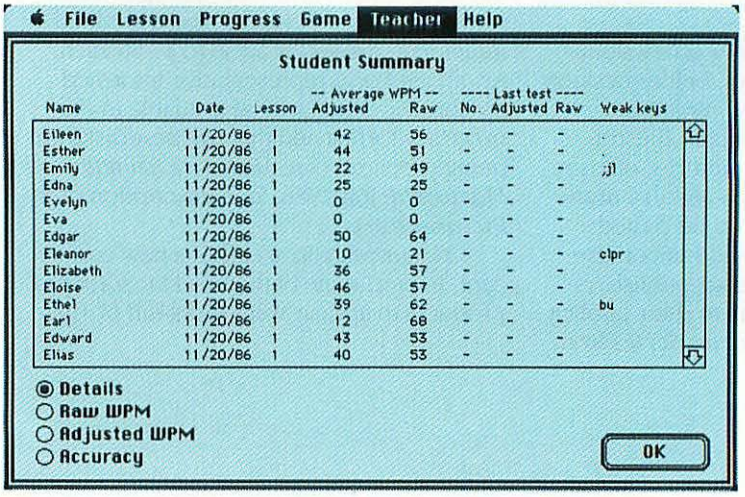
Typing Made Easy includes a break from "straight" typing exercises—an alphabet maze game that reinforces finger placement and improves speed and accuracy. There are time-saving features, too. Signing in creates an icon with your name on it; clicking on that icon restarts the program exactly where you left off. ⌘-key shortcuts let you choose a lesson, view progress, start drills, play the game, or quit. Warm-up exercises that do not affect your cumulative statistics allow you to limber up before reentering a lesson.

QED has clearly done its homework collecting information from typing teachers and students. The manual is complete, clearly written, brief, and practically unnecessary.

Typing Intrigue

This program uses incentives—clues to a mystery—to awaken your interest in learning to type. The mystery to solve: Who stole Lord and Lady Southby's gold bathtub from Quidsmore Castle? To find out who did the dirty work, you earn points by typing and exchange them for clues.

Typing Intrigue includes a series of tutorial typing exercises, The Basics, that enable you to practice finger placement and simple drills. The Basics menu also includes instructions, a typing test and a key-



At a Glance
Typing Made Easy *features a teacher/administrative system for reviewing students' progress.*

board map. Beeping for errors is mandatory in some typing tutors, but *Typing Intrigue* lets you turn off the wrong-key beep.

The feature I like best is a points-earning game in which falling raindrops (you control their speed and quantity) contain letters. If you fail to type the correct letters, the raindrops accumulate and flood you out. With seven levels of difficulty and six key ranges, the game builds rhythm and correct finger placement.

The Workout is a set of typing drills featuring unusual combinations of real words. As in *Typing Made Easy,* the words are varied to increase practice on weak keys. However, because it has a place marker and presents words one short line at a time, the program makes it easier to cheat and look at the keyboard. In addition, typed characters are displayed immediately, affecting speed because you tend to glance over to see how well you've done.

To calculate your typing accuracy, *Typing Intrigue* checks each line that you type, character by character, against the originally displayed text. Some errors—for example, typing an extra space or skipping a letter—put you out of sync with the original text. This causes the remainder of the line to be highlighted as wrong—even if it was typed correctly after the point where you made your error. I also disliked the clumsy work-around technique recommended in the manual. Progress reports spare you details and simply report speed, accuracy, and the number of clue points accumulated.

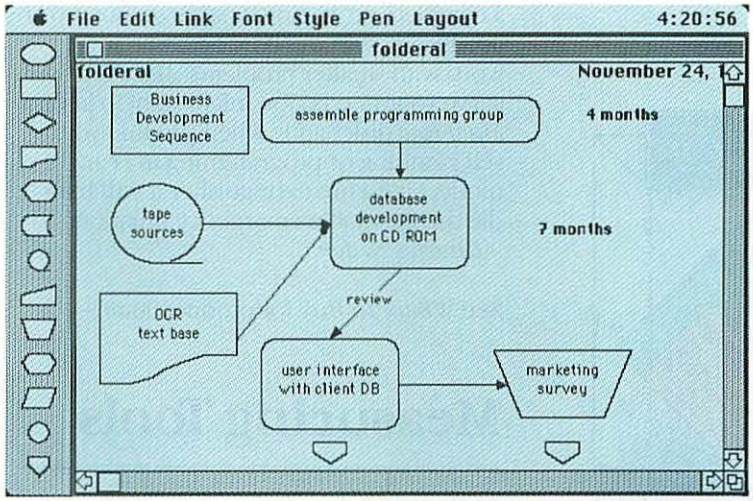
Unlike *Typing Made Easy,* which sets no limit on the number of students, only six students can use *Typing Intrigue.* Another limitation is that students enrolled cannot be deleted. There are no shortcuts; each time you must enter the program via a slow and repetitious music graphics introduction.

However, *Typing Intrigue* does have a certain appeal; if you are a fan of the Nancy Drew or Hardy Boys mysteries, this program could be the one for you.

Conclusion

Typing Made Easy's straightforward ease of use, word-by-word error-checking, fine instructional design, and detailed record-keeping make this program superior to *Typing Intrigue.* In fact, the program is suitable for office, classroom, and home use. *Typing Intrigue* has paid a little too much attention to cleverness and not enough to teaching typing. The Workouts aren't intense enough to keep your eyes on the screen and off your hands—the key to learning touch-typing. The character-by-character error-checking can give misleading and inaccurate results; the six-user limit restricts the program's usefulness. For those with a serious need for typing skills, *Typing Made Easy* is the better choice.
—Nanci Reel

See *Where to Buy* for product details.



Quick and Dirty
Connectors tie flowchart symbols (shown along the left of the screen) and accompanying text labels into a structured system. Floating labels are enclosed in White Pen boxes.

A Flowchart Drafting Tool

***MacFlow** 1.02*

Flowchart design and documentation.
***Pros:** Easy to use; flexible; good value for the price.* ***Cons:** "Structured systems" features limited for professional users.* ***List price:** $125.*
***Requires:** 512K.* ***Copy protection:** None.*



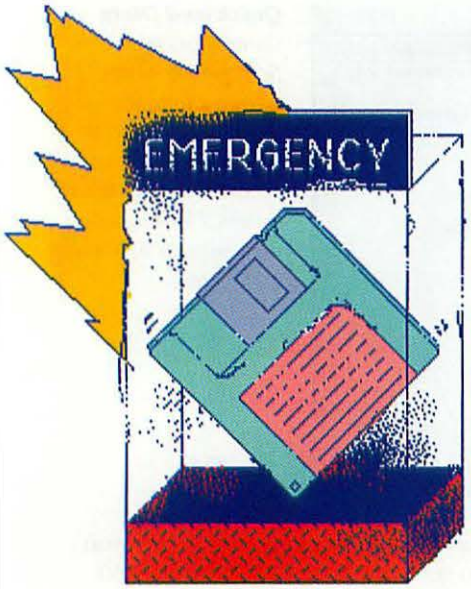
If you are involved in systems design and are using advanced professional flowcharting systems like *Anatool* or *Design* (see *Reviews, Macworld,* January 1987 and February 1987), you should keep a copy of *MacFlow* in a glass box on the wall that says "Break in Case of Emergency!" *MacFlow* by Mainstay Software is a design aid for producing flowcharts; it's fast and simple to use. It lacks some of the documenting features (for example, data dictionaries and diagram parent-child hierarchies) of complete professional systems, but if you want to get a diagram done between 3:30 p.m. and the Federal Express pick-up, *MacFlow* is your best alternative. The large diagram shown (see "Quick and Dirty") took about five minutes, with no previous user experience and while the *MacFlow* manual was lost behind a file cabinet. This is at least six times faster than making a typical *MacDraw* version of the same picture and several times faster than using either of the more elaborate flowchart systems.

Flexible Templates

MacFlow provides a selection of standard flowchart symbols, as shown in "Quick and Dirty." You select and drag the symbols onto the drawing area and size, label, and connect them with arrowhead connectors or straight lines.

Several features make *MacFlow* superior to a simple drawing program. The flowchart symbols are easily sized, either horizontally or vertically, to accommodate a variety of labeling styles. The connectors and the text labels on the connectors "follow" the flowchart symbols in diagrams. When you move the symbols around on the screen to change your diagram's structure, *MacFlow* adjusts the connectors and labels accordingly.

Individual symbols in a flowchart expand to more detail with a Zoom function that lets you see a diagram in a *child window,* referenced to the parent symbol. This is a simple but useful implementation of the hierarchical concepts that give *MacFlow* the extensive structural capabilities of the advanced systems mentioned earlier.



These sizing and symbol-linking features alone would make *MacFlow* a useful product for diagramming systems ideas, but Mainstay has included several other beneficial touches. For example, the White Pen option in *MacFlow*'s Pen menu lets you place labels in invisible boxes anywhere in the diagram. Furthermore, you can link these labels to symbols with invisible connectors for clear documentation. When, for example, you drag a decision diamond to a new place in the diagram, any linked labels automatically move with the diamond. Different pen widths and shades of gray "ink" also make it possible to label groups of symbols in a diagram (for example, all procedure calls in a program flowchart).

The Layout menu also offers some valuable visual aids. Grid aligns symbols for a crisp, professional appearance. Portrait mode allows you to print the flowchart vertically (as opposed to Landscape, which prints it horizontally). The Shadow All feature lets you shadow symbols to dramatize particular sections of a chart.

This Is Art, Not Literature

If you get the impression that *MacFlow* is a strong visual tool for designing a flowchart, you have the essence of the program. *MacFlow* does not have any features comparable to the Data Dictionary in *Anatool* or the program-text-into-graphics capability of *Design*. In fact, if you routinely document large, complicated systems, you will ultimately need the power of a complete professional package. But if you produce flowcharts only occasionally, or work with smaller problems, *MacFlow* will serve your needs. You might want to keep a *MacFlow* disk handy when you find yourself planning or programming in crunch mode. Like a fire extinguisher it will handle the inevitable emergency situation.
—Charles Seiter

See *Where to Buy* for product details.

Measuring Tools

Sizer and Adjacency *1.7*

CAD-like desk accessory for MacDraw (version 1.7 or 1.9). ***Pros:*** *Adds measuring and sizing functions and the ability to abut and align* MacDraw *objects compatible with* Switcher. ***Cons:*** *Requires sending your* MacDraw *disk to manufacturer for installation; sometimes leaves afterimage on screen until screen is scrolled or refreshed; doesn't measure length of sloped lines.* ***List price:*** *$69.* ***Requires:*** *128K.* ***Copy protection:*** *None.*



If you ever need to create *MacDraw* objects that are accurately sized and aligned, the aptly named *Sizer and Adjacency* desk accessory is an inexpensive and welcome upgrade to Apple's object-oriented software.

While Timothy Johnson, architecture professor at MIT, first developed *Sizer and Adjacency* to accurately draw building floor plans, elevations, and construction details, other professionals—such as interior designers, engineers, publication layout designers, and news artists—have found the program indispensable for measuring *MacDraw* documents.

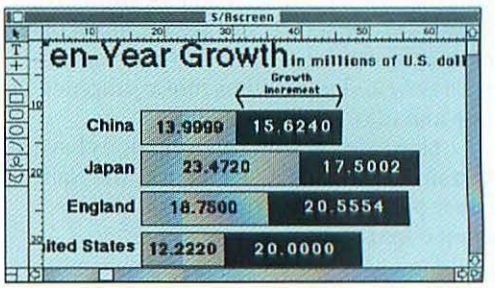
Not only do the desk accessories improve *MacDraw*'s performance, but they increase the size of *MacDraw* by only 12K. The sizer feature displays an object's exact dimensions and allows you to resize an object; the adjacency feature controls the location of an object so that it can be aligned edge-to-edge with a second object. Used in conjunction with *MacDraw*'s Align Objects feature, *Sizer and Adjacency* gives you drafting capabilities. Since Align Objects only aligns vertically along the top or bottom of selected objects, aligning the bottom of one object with the top of a lower object requires painstaking adjustments with the mouse. Turning on the grid helps you align objects, but limits the location of objects to a coarse grid spacing. *Sizer and Adjacency* lets you align abutted objects with a one-keystroke command.

Sizer and Adjacency displays the horizontal and vertical dimensions of an object one hundred times more accurately than originally possible with *MacDraw*. You change an object's size by changing the displayed dimensions. By allowing you to switch measurement units, from inches to centimeters, for example, *Sizer and Adjacency* also functions as a conversion calculator. In addition to inch and centimeter scales, the program also includes architectural scales for drafting, where ¼ inch in a drawing represents 1 foot and 0 inches. For page layout, you can simulate picas and points by selecting 12 major and 6 minor divisions on the custom ruler.

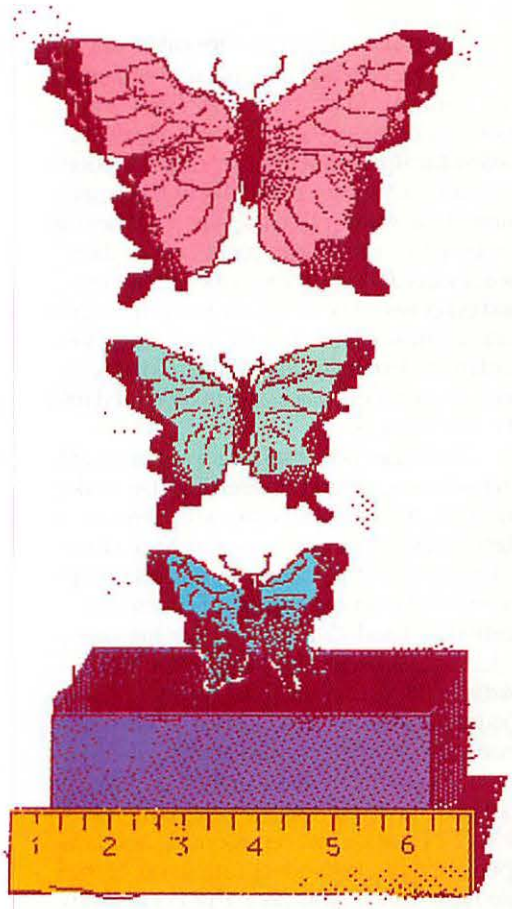
A major weakness of the sizing feature, compared with other CAD packages, is that it will not measure the length of diagonal lines. Those lengths must be calculated from a line's vertical and horizontal projection—which you could do automatically with a macro program like *Tempo*.

A Graphing Tool

By setting *MacDraw*'s ruler so that, say, one inch equals a million dollars, *Sizer and Adjacency* provides you with a powerful tool for automatic sizing of statistical graphs. Furthermore, you can bypass graphing software and update simple data graphs already formatted in *MacDraw* by resizing the graphic elements. This eliminates the problem of having to customize the graphs with fill patterns and line weights each time you update the data. By



Sizing and Stacking a Graph
Sizer and Adjacency *lets you size the bars in this graph, space the bars evenly, stack the horizontally adjacent bars, create an accurately sized dimension line, and label the values for each bar.*



making two bar segments exactly adjacent (see "Sizing and Stacking a Graph"), you can create stacked bar charts, and then group an entire graph and automatically enlarge or reduce it to fit pica and point column sizes in page layouts. This sizing feature is absent even in some expensive and sophisticated layout packages.

A big advantage of the *Sizer and Adjacency* alignment and keyboard-sizing features is its ability to create an accurate drawing in the Reduce to Fit format. This allows you to visualize and create a drawing without constantly zooming in to size and position objects and then zooming back to view the overall layout.

Since any object's displayed dimensions can be copied to the Clipboard, you can paste the numbers into a spreadsheet for calculations or directly into the *MacDraw* document for dimension line labels. Such coordination between software tools is especially efficient, since *Sizer and Adjacency* is compatible with *Switcher*.

To obtain *Sizer and Adjacency* you must send Johnson & Johnson your *MacDraw* disk. Although you cannot use Apple's Font/DA Mover to install the program yourself, any backup copy you make of your *MacDraw* disk will include the two desk accessories, since the program is not copy protected.

Sizer and Adjacency is a deceptively simple tool that provides a variety of features unavailable in some higher-priced, more sophisticated packages. While it cannot match all the features found in dedicated graphing or CAD software, *Sizer and Adjacency* provides many of their capabilities at a far lower cost. And it retains *MacDraw*'s screen-redrawing speed and many versatile features for working with measured graphic documents.

Sizer and Adjacency is an essential upgrade for any *MacDraw* user. Even if your graphic needs do not include graphs and drafting, you will surely discover time-saving applications for this package's basic sizing and aligning features. *—Stuart Silverstone*

See Where to Buy for product details.

English-Teacher-on-a-Disk

***MacProof** 2.0*

Spelling, punctuation, usage, and style checker. ***Pros:*** *Very good manual that explains style and usage; network version available for classroom work.* ***Cons:*** *Awkward, noninteractive procedures make editing tedious and time-consuming; often flags correct usage as possible error.* ***List price:*** *$195.* ***Requires:*** *1MB; 512K for network version.* ***Copy protection:*** *None.*

Automated Languages Processing Systems (ALPS) bills *MacProof* as "the first complete spelling and style checker." Although the program does check spelling—and a lot more—it's so different from most spell-checkers on the market that this honest description may be misleading. *MacProof* is more like an English-teacher-on-a-disk: it marks up your document's potential errors—spelling, punctuation, usage, and style—but like the classroom teacher, leaves all the corrections up to you.

It's no accident that the program evokes a classroom atmosphere. In addition to the single-user version, *MacProof* is available in a multiuser form, for high-school and university writing labs. In conjunction with a composition course, *MacProof*'s ability to help students focus on questionable usage can be helpful. For the solitary user, though, *MacProof* may prove to be more meddlesome than instructive.

A Flexible Dictionary

At the heart of *MacProof* is a dictionary that recognizes over 93,000 correct spellings. It conjugates regular verbs and pluralizes regular nouns but requires separate entries for all forms of irregular verbs and nouns. *MacProof*'s dictionary is actually a database that not only spells each word but also categorizes it (for example, as a verb or an adjective, a potentially sexist term, or a "confused" word). You can enter words in your own dictionary (see "Making an Entry"), although *MacProof* won't conjugate or pluralize them as it will the original words; you must enter each form separately. You can set or change the classifications for each of your own entries as well as those in *MacProof*'s dictionary.

MacProof lets you access any document created in *MacWrite* or *Microsoft Word* and most files saved as "text only." But be prepared for a short wait while *MacProof* loads the dictionary and checks your file: a 4-page document can take over two minutes, and a 15-page document takes about four minutes. (*MacProof*'s maximum document-handling capacity is 15 to 20 pages.)

Putting Your Work to the Proof

After the checking's completed, *MacProof*'s four review menus help you check for trouble spots: Mechanics (spelling, punctuation, capitalization, double words); Usage (sexist, racist, confused, vague, overworked, discouraged words); Style (nominalizations, "be" verbs); and Structure (paragraph flow, syntax). With the first three menus, you can choose to see either a list of possible errors or the entire document with all potential errors and questionable usages highlighted. From the Structure menu you can select "abridgment," to display or highlight the first and last sentence in each paragraph, or you can choose "expansion," to list and number the sentences or highlight the first word of each sentence.

Unfortunately, *MacProof* goes no further than pointing out possible problems. And because you can't view different types

of errors simultaneously or make corrections from within the program, using even a few of *MacProof*'s options can take a great deal of time. You must print your document with one type of error highlighted, quit *MacProof,* start your word processor, make changes, and then return to *MacProof* to check for other problems. Not letting you edit text directly is the program's most serious flaw. *MacProof* runs more efficiently under *Switcher* (make sure to Configure Then Install for 650K) but would be even better as a desk accessory that you could access from within your word processor. At press time, ALPS was working on a new version that would be interactive with *MacWrite.*

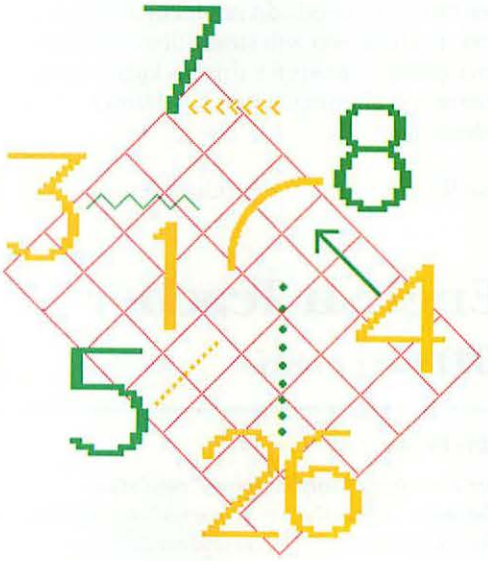
MacProof's reliance on its dictionary means that often the "problems" it flags aren't really errors at all–just usages that might, in some contexts, be wrong, misleading, or improper. When *MacProof* searches for confused words, for example it highlights all instances of there/their/they're, to/two/too, and other words frequently substituted for each other. When looking for sexist words, *MacProof* will highlight "girls," and explain that the term is sexist if applied to adult women. In many cases, though, your usage may be perfectly valid.

No Substitute Teacher

If you have a reasonably good grasp of the English language, the ambiguities resulting from *MacProof*'s maybe-it's-wrong-maybe-it-isn't approach should not be a problem. You can use *MacProof* to catch typos and oversights, and you probably won't be distracted by the high percentage of correct words the program flags as questionable. However, if you're among those with shaky writing skills–the group *MacProof* is aimed at–you're likely to find the program more confusing than helpful. *MacProof*'s manual tries to resolve these difficulties by providing clear examples of each type of error and explaining why they're wrong. But even so, when struggling with our own work, many of us need more guidance than "something may be wrong with this; figure it out for yourself."

As hard as it tries, this on-disk teacher is still no substitute for the real thing.
–Cynthia Harriman

See *Where to Buy* for product details.



Making an Entry
Each word you enter in your own MacProof *dictionary must be tagged with a part of speech and appropriately placed in the "Usage" or "Spelling" category. These classifications are the key to* MacProof*'s system of checking for trouble spots.*

Make a Date with CalendarMaker

***CalendarMaker** 2.1*

Calendar construction set. ***Pros:*** *Three calendar styles; high-quality LaserWriter output; date boxes can contain both pictures and text; accepts data from* More, SideKick, *and others.* ***Cons:*** *No full-page preview option; calendars cannot be titled; picture calendars must use paint-format pictures.* ***List price:*** *$30.* ***Requires:*** *512K.* ***Copy protection:*** *None.*



Every fall I have the same problem: finding the ideal calendar for the coming year. In answer to this universal dilemma, CE Software has published *CalendarMaker*. The program's intuitive design lets you create a calendar with far less time and effort than *MacPaint* and *MacDraw* require.

You can construct picture calendars with one picture and one month per page and plain calendars with either one or two months per page. Within these constraints, *CalendarMaker* offers many design options. You can set Sunday or Monday as the beginning of the week, place the date in either the lower left or lower right corner of the date box, insert an icon in the opposite corner, and enter text. The program lets you assign a font, a font size from 1 to 127, and a style for each text element (names of the months, days of the week, dates, and text entered into the date boxes).

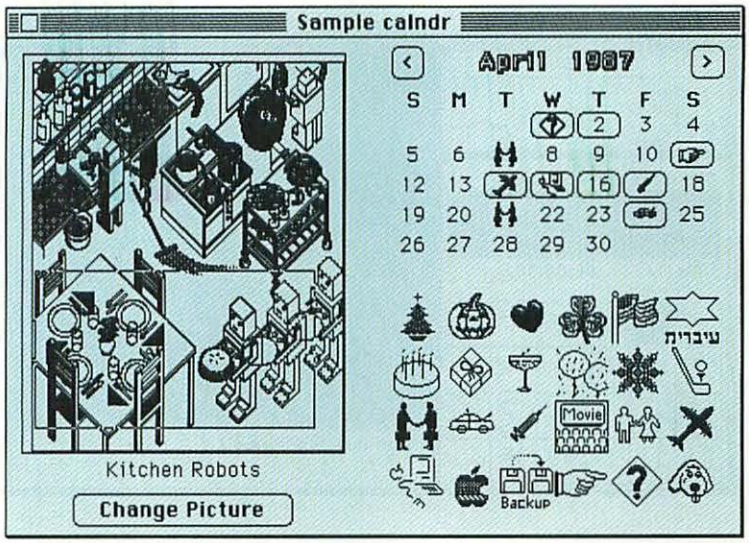
Each date box displays text of up to 255 characters centered between the date and the icon. Text and icons stay with their assigned dates, making it easy to create new calendars from old ones. Day entries (as opposed to date entries) must, of course, be shifted by hand. *CalendarMaker* imports calendar data from *SideKick for the Mac, Battery Pack, Calendar 1.1* (by Mosaic Codes), and *More,* and inserts the data automatically into the appropriate date boxes.

Next to the number in the date box, you can place an icon from the program's selection of 24 stock icons representing holidays, special events, reminders, and so on. Using the *IconMover* application that comes with the program, you can edit any of the icons within the program or replace them all with icons you create. Switching between *CalendarMaker* and *IconMover* is relatively easy, since each program has a Go To command which bypasses the Desktop and goes directly to the other program.

Picture Calendars

To create a picture calendar, you assign a paint document to each month. The entire paint document is displayed on the left side of the program window; you must drag a small frame over the portion of the document you want to see on the calendar. When printed, each picture is centered at the top of the calendar page and surrounded by a patterned border. You can select one of six stock patterns for the border (four of these, however, are rather unsightly), leave the border blank, or edit a pattern. You can use the same patterns and options for blank spaces.

While the most immediately appealing aspect of *CalendarMaker* is its ability to make picture calendars, the ease with which it makes full-page calendars is prob-



Making a Calendar
With CalendarMaker, *you can add pictures to date boxes by dragging icons onto the dates. Doing so replaces the dates with reduced-size icons. To enter text, click on a date and type. Dates containing text are circled.*

ably more useful in the long run. This capability is especially useful for any business or organization, from little-league baseball to hospital volunteers, that regularly posts or mails calendar-style schedules (or would like to).

When you print your picture or full-page calendar on the LaserWriter, text formatted in laser fonts prints at full resolution, resulting in output of impressive quality. Since *CalendarMaker* lets you save the file in draw format, you can enlarge or reduce the calendar in *MacDraw* or *PageMaker* and then print it on the LaserWriter with no loss of print quality (except for the picture or icons in a picture calendar). To print the calendar in color, you must export it as a paint file into another application, such as *ColorPrint*. The company plans to incorporate color in the next revision.

Despite the program's high quality, there's room for improvement. While you can preview how icon, date, and text fit into an individual date box, for example, there is no way to preview a whole page, or an entire calendar, before printing it. Nor is there any way to title your calendars according to their purpose or topic. Thus, if you want to make two different calendars, you have to add titles with a graphics or page-layout program in order to distinguish the two. Additionally, you cannot use draw-format documents for the illustrations in picture calendars; the manual could be clearer and better organized; and there is a bug or two in the Select Printing Pattern dialog box.

But these are minor quibbles in light of the program's diversity of use and low price. Even more appealing is the fact that *CalendarMaker* is distributed under CE Software's MacHonor system. This means that you can find a copy of the program in most user group software libraries and on many noncommercial electronic bulletin boards and commercial information services. After you try it out, you can send $30 to CE Software to obtain a disk with the latest version of *CalendarMaker, IconMover* (which is not available from the aforementioned sources), and a collection of icon files, plus the printed manual for both programs.—*Robert C. Eckhardt*

See *Where to Buy* for product details.

Blue-Book Replacement

TimeLink *1.0*

Time-management program. ***Pros:*** *Combines daily, weekly, monthly, and yearly calendars with some number-crunching features.* ***Cons:*** *Monthly calendar hides multiple appointments; inadequate for contractual time-keeping.* ***List price:*** *Version 2.0 $49.95.* ***Requires:*** *128K.* ***Copy protection:*** *None.*



While the paperless desk or office is a fading dream, Batteries Included seems committed to the idea that if you can put it in your computer, you can get it off your desk. For starters, they'd replace your appointment calendar with *TimeLink*. Developed by SofTek International and sold as a time-management system, it's billed also as a diary, a project manager, and a log for consultants with hourly billing requirements. *TimeLink* does a bit more, though, than just tell you when, what, and with whom. It calculates things like how long it will take to complete a project; which years are leap years; and how much you spent on carfare last month.

Linking Up with TimeLink

TimeLink displays calendar information via four pull-down screens: Day, Week, Month, and Year. A grid of vertical months and horizontal days, the Year screen shows key letters for days with appointments, boldface squares for weekends, and checkerboard squares for nonexistent days (like April 31). If all screens are activated, you "unpeel" your appointments by clicking on a day in the yearly calendar and zero in by closing the screens regressively.

On an update screen you enter the date and time of your appointments; an optional seven-letter "key" that allows for sorting; and text (up to 241 characters). You can skip the time entry, but you must specify either a key or text. Furthermore, the key field is a significant feature in a multiuser setting: individual entries can be keyed by name, and only those entries are displayed or printed when you select that key.

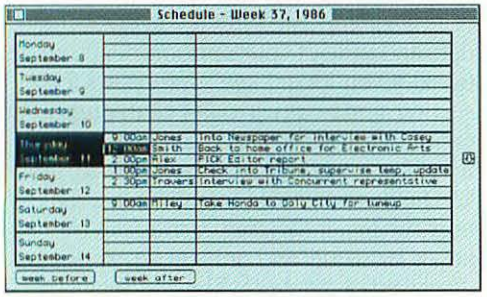
TimeLink has some oddities, though. First, if you press Return instead of Tab when you enter data on the Update screen, the cursor won't advance. If you then press Tab, that "hidden" Return will cause the entry to overrun the grids when displayed. *TimeLink* allows entry and display of up to a full page of appointments on the daily screen—not an unreasonable limit. Of the other three, only the weekly screen gives you an inkling that multiple appointments exist (see "The Weekly Screen"). It does this by displaying an arrow to the right of those days with more than three appointment entries. While the text entry box allows only 241 characters (sufficient for most notes), it doesn't tell you when that limit is reached. Only when you've posted your entry do you discover that the program has truncated the additional text or schedule information.

TimeLink allows you to calculate the time between any two dates (from 1904 to 2039), giving you the time in calendar years, calendar months, days, hours, and minutes, plus the total number of days and partial days. You can add or subtract any

amount of time from a date, and dates can be in either European or American format. Any number with square brackets can be scanned and added up within any time range by the Sum Numeric Fields function, and you can enter a field name for each number (such as "[expense = $18.95]") so that the totals are not just meaningless digits. Printing is a straightforward task. Besides screen dumps, *TimeLink* prints entries within any range of dates. The result is a titled reportlike printout, with days, times, and text listed for the selected range.

Close, but No Cigar

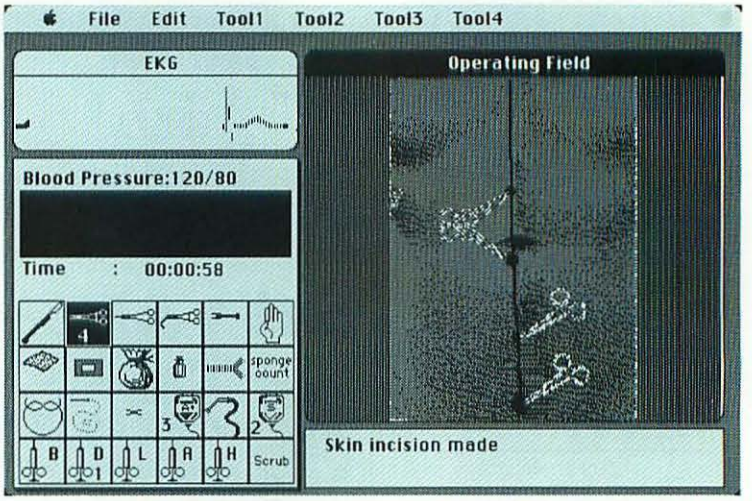
Overall, *TimeLink* is simple to use. The manual guides the novice through interface basics. The program's ability to sum numeric fields is helpful for tracking expenses and revenue. (However, unlike a true time-billing package, *TimeLink* can't adequately calculate or annotate income and expenses, since it can only add fields with the same name.)



The Weekly Screen
The down arrow indicates additional daily appointments, a feature not offered on the monthly screen.

Although *TimeLink* does more than just give you basic appointment information, I don't think most people would find carrying around a three-ring binder full of *TimeLink* printouts an acceptable substitute for a portable appointment book. *TimeLink* is for those who make frequent schedule changes, who require minimal time-billing information, or who can benefit from the query and sort capabilities that computer programs offer. —*Michael Miley*

See *Where to Buy* for product details.



The Operating Theater
An incision has been made in the patient's abdomen, and hemostats have been placed at bleeding sites (represented by enlarging black spots) until the bleeding vessels can be tied off.

The Cutting Edge

The Surgeon *1.1*

Medical game simulation. ***Pros:*** *Fast paced; reasonably accurate simulation; good illustrations.* ***Cons:*** *Beginning of the game becomes boring after the first few times.* ***List price:*** *$60.* ***Requires:*** *512K.* ***Copy protection:*** *None.*

I doubt that many TV viewers have watched the surgical exploits of Ben Casey or St. Elsewhere's Mark Craig without once wishing they were holding the scalpel. ISM's game *The Surgeon* lets you do just that, as you perform an actual operation.

The game begins (all too predictably, it turns out) by presenting you with a patient complaining of lower-back pain. You're shown an X-ray of the spine or an ultrasound examination of the abdomen (a picture made with high-frequency sound waves); sometimes you have to request the ultrasound yourself. Based on what you see, you must decide what to do next: observe (do nothing), prescribe painkillers, or operate. Most of the time, the tests will show that the patient has an aortic aneurysm, a ballooning of the major artery in the abdomen. Unless you operate to repair it, the patient may die. But if there is no aneurysm, and you decide to operate anyway, the surgery itself could kill the patient. Since your options are limited, this part of the game becomes boring by the fourth time through.

Once you decide to "go in," the fun begins. At the top left of the screen (see "The Operating Theater") is a patient monitor, showing real-time EKG, blood pressure, and elapsed time. Below are twenty-four icons representing the tools of your trade, including surgical instruments, sponges, drapes, sutures, clips, medications, and of course, the surgeon's hand. You activate a tool by clicking on its icon, and you use it by clicking or dragging in the operating field on the right. Choosing a tool from one of the menus brings up a dialog box but doesn't select the tool.

The operation consists of a well-defined series of steps that begins with scrubbing yourself and preparing the patient's skin with antiseptic solution. During surgery, any of several potentially fatal complications may arise. If you fail to recognize or treat them properly, the patient will die, sending him to the morgue and you back to the doctor's office. And since there's no way to save a game in progress, you find yourself going through all the early steps again and again.

The Surgeon comes with a 14-page manual and a sheet that details the steps in a successful operation. The printed documentation doesn't say much about how to actually use the game on the Mac and suffers from a few errors in grammar and labeling ("spleen" instead of "spine"). Also, the $60 price tag is a bit high for a game that you'll probably only play a few times. Although I dispute the authors' contention that the game would be valuable to medical students, it might prove educational and challenging to nonmedical personnel. —*Franklin Tessler, M.D.* □

See *Where to Buy* for product details.

This is the Only Aspiring Young Professional We Could Find That Had a Legitimate Excuse for Not Using MacLightning.

To those of you who have made MacLightning™ the nation's best-selling spell checker in just six short months, we say *thanks!*



To those of you who, for one reason or another, have not yet joined the ranks of our satisfied users we introduce **MacLightning version 2.0**. Now there can be no excuse!

When MacLightning made its debut early this year it was the **only** "interactive" spelling checker for the Macintosh. Thanks to Merriam Webster's Ninth New Collegiate Dictionary, a 45,000-word Thesaurus and a long list of upgrades, **it still is.**

Operating in either the interactive or non-interactive mode, MacLightning spell checks your work at a blazing 75 + words per second. This puts it light years ahead of the competition.

Also available from Target Software are extensive dictionaries covering medicine, law and a host of other technical fields.

So if you'd like more information, or the name of a dealer near you, call Target Software toll-free. You'll never go wrong again.

MacLightning Version 2.0 – $99.95
Merriam Webster Thesaurus – $49.95
Merriam Webster Medical Dictionary – $99.95
Merriam Webster Legal Dictionary – $99.95

Target Software

National: 1-800-MAC-LITE (800-622-5483)
In Fla. (305) 252-0892

Target Software Inc. 14206 Southwest 136th Street, Miami, Florida 33186

Circle 478 on reader service card

"Can w

Absolutely.

For the first time, a PC and a Macintosh™ can really talk together. Simply, transparently, reliably.

It's done with TOPS,® the easiest to learn, easiest to operate Local Area Network yet designed. You can now access Lotus 1-2-3™ files located on a PC, for example, and modify them on your Macintosh under MicroSoft™ Excel.™

With TOPS you can have three Local Area Networks in one. Macintoshes can talk to Macintoshes, PCs can talk to PCs and PCs can talk to Macintoshes. All of these computers can be connected on the same LAN, sharing databases, text files, connecting up parts of your office that until now were barely on speaking terms.

Installation is quick and straightforward—less than four minutes for a Macintosh, fifteen minutes for a PC.

It's all done so easily and success-



e talk?"

fully that within the first month TOPS was available, it was already installed in over 100 Fortune 500 companies.

This talk is also remarkably cheap. TOPS is $149 per Macintosh, $389 per PC.

As if that weren't enough good news, we are pleased to also announce one of this year's major advances in desktop publishing. Now, using TOPS PRINT™ you can have all your PCs share Apple's LaserWriter.™

TOPS and TOPS PRINT are available at Businessland and other fine computer dealers. For the dealer nearest you, call 800-222-TOPS (in California call 800-445-TOPS).

And we'll do just what a Macintosh and a PC can now do. Talk.

TOPS®
Network



Centram
2560 Ninth St., Berkeley, CA 94710

TOPS is a registered trademark and TOPS PRINT is a trademark of Centram Systems West, Inc.
All other product names are trademarks of their manufacturers.

Circle 524 on reader service card



DO NOT ATTEMPT WITHOUT COMPUSERVE.

Get all the facts as fast as the experts do before you try to tame the market.

Without accurate, up-to-the-minute data you can easily get taken for a ride on Wall Street. That's why it's important to get your hands on CompuServe. The fastest, most reliable source of comprehensive financial data available.

Now, just like Wall Street's most prestigious firms, you can check out a tip or find a hot, money-making lead in a matter of seconds. Investigate any area of interest. Or scan CompuServe's financial news highlights to find new areas to investigate. Including...

Continuously updated quotes on over 10,000 issues.

MicroQuote II—12 years of daily historical prices, along with dividends, splits, distributions and interest payments on more than 90,000 stocks, bonds, mutual funds, options, foreign exchange rates and hundreds of market indexes.

Graph trends quickly online. Review your portfolio performance, investigate returns in bull and bear markets. Screen for stocks to buy, or transfer prices and dividends to your microcomputer for detailed analysis.

Standard & Poor's descriptive information on over 3,000 companies.

Value Line Data Base II—extensive, fundamental data for analyzing the performances of over 1,800 major corporations.

Disclosure II—descriptive and financial information from the SEC filings and annual reports of over 8,500 companies.

Institutional Broker's Estimate System (I/B/E/S)—earnings projections from top research analysts on over 3,000 widely followed companies.

You can also research technical market trends, review economic projections and high-powered market analyses. Get expert advice on retirement, financial planning, managed accounts, taxes and insurance. Evaluate your own portfolio, even connect to a variety of at-home banking and brokerage services.

And all this comes with CompuServe's base of news, weather, telecommunications, special interest and entertainment services.

Compare CompuServe's rates to the cost of expensive floppy-based sources. Compare our up-to-the-minute delivery to time-consuming publication research. Compare the depth and breadth of our virtually infinite databases to any other source of investment information.

Then see your nearest computer dealer for a CompuServe Subscription Kit. Suggested retail price is only $39.95 and includes $25 of online time.

For more information or to order direct, call or write:

CompuServe®

Information Services
P.O. Box 20212
5000 Arlington Centre Blvd.
Columbus, OH 43220

800-848-8199

In Ohio, call 614-457-0802



An H&R Block Company

Circle 330 on reader service card



Quick Tips

Answers to your questions

by Lon Poole

In October I suggested a way to print envelopes on an ImageWriter. Several readers wrote to suggest alternatives. Allan Hull of Boulder, Colorado, copies the address from his word processor into *MacDraw* and uses its rulers and grid to position the address. Robert D. Reynolds of Tempe, Arizona, copies the address and pastes it into a standard envelope document he has set up. After printing the envelope, he closes the envelope document, taking care *not* to save the changes, because pasting the address is a temporary change.

Niel Pierson of Allegan, Michigan, disagrees with my opinion that return addresses are hard to print using an ImageWriter, particularly with *MacWrite*. He picks the Landscape orientation in the Page Setup dialog box and feeds the envelope into the ImageWriter sideways. His envelope document has a left margin at 1 inch and a tab marker at 4 inches. He puts 18 blank lines at the top of the document, above the return address. The address goes six lines below the return address, and each line begins with a tab. When he's ready to print, he inserts an envelope lengthwise linking up the top of the envelope with the right edge of the ImageWriter's middle rubber roller. He rolls back the envelope so that its edge is just past the pressure rollers under the platen. He does this because the ImageWriter advances the paper before it begins printing.

You can get the same effect without tabs by setting the left margin at 4 inches, and with *Microsoft Word* version 1.05 you can use Page Setup from the File menu to set special page margins. For example, the following margins work when you insert the envelope lengthwise at the red line on the ImageWriter's paper bail: Top 6.25 inches, Left 4 inches, Bottom 0.5 inches, Right 1 inch. Because most envelopes are thicker than a sheet of paper, it's a good idea to adjust the thickness control lever, which is hidden underneath the cover on the extreme right.

Q Traveling Mac

I plan to fly across the country and would like to take my Macintosh and ImageWriter along. Are there any precautions I should take in passing them (and my disks) through airport security? Are the conditions in the cargo hold satisfactory, or should I hand-carry the system on the plane?

Peter Wentzel
New York, New York

Q

I am moving to Australia and need some information about using my U.S.-built Macintosh system. I have a Mac upgraded to a Mac Plus, a 400K external drive, and an ImageWriter I. I'm also considering the purchase of a 20-megabyte hard disk. Will the equipment work in a 220-volt, 50-hertz environment?

F. Thomas Balzer
Alexandria, Virginia

Q

I am being assigned to Israel and would like to take my Mac Plus and ImageWriter II with me. I know the Mac Plus is 50/60-Hz compatible, but the ImageWriter and the LaserWriter are not. Could you recommend something?

David Gutholc
Yonkers, New York

A

The U.S.-model Macintosh Plus, Macintosh 512K, and ImageWriter I are all designed to operate at 107 to 132 volts AC, at a frequency of 50 to 60 Hz (cycles per second). In Australia, Israel, and other countries with 220- or 240-volt power, you can operate a Mac and an ImageWriter I with a 220- to 110-volt (a "two-to-one") step-down transformer. For the Mac alone, the transformer must be rated at 60 watts (60 VA) or higher. For the Mac and ImageWriter I together, the rating must be 240 watts (240 VA) or higher. Expect to pay about $60 for a good-quality, grounded (3-prong plug) isolation transformer. Do not use a cheap voltage converter; it will ruin your computer equipment.

The U.S.-model ImageWriter II and LaserWriter require 60-Hz current, so you probably won't be able to use either of them overseas, where most electricity is 50 Hz. Get a used ImageWriter I, or buy a local ImageWriter II or LaserWriter after you arrive.

The Apple Hard Disk 20 and HD-20SC both operate on 85 to 270 volts at 47 to 64 Hz. These drives adjust automatically to the voltage, so instead of a step-down transformer, all you need is an adapter plug to match the local wall socket. Most domestic third-party hard disk drives, however, work only on 120 VAC, 60 Hz. There are exceptions; check with the manufacturer or a dealer. The power requirements are always printed on the back of the device. Upon request, Personal Computer Peripherals Corporation will configure either the SCSI or the serial version of MacBottom to work with 220 volts. The AST-2000 also works with 110 or 220 volts, at 50 or 60 Hz.

Devices that don't have power plugs—such as the mouse, the keyboard, and external floppy disk drives—derive their power from the Mac. Therefore, they work anywhere it works.

By the way, you may encounter some difficulty should your "foreign" computer

(continues)

Now Macworld puts a powerful new research tool right at your fingertips.

If you need instant access to news and information about your competition, your profession, technology, finance, law, or just about any other subject, *Macworld's* SearchLink will give it to you.

Macworld's new SearchLink service gives you easy access to more than 800 databases in just minutes!

And SearchLink gets you answers to all sorts of questions from these databases—like details about new products and services, or market facts, or emerging technologies. You can get information on computers, medicine, investments, law, chemistry, engineering and much more. Everything from accounting to trademarks to history or geography.

SearchLink is easy to use and inexpensive.

All you need is a credit card and a computer with modem. No subscriptions. No passwords. No difficult manuals to learn. Just call 800-843-7337 with your computer and log on. You pay only $7.99 per search (a few databases carry surcharges) plus 25 cents per minute for telecommunications and $2 for each abstract you want to see. (You can also get hard copies). You can charge everything to MasterCard, VISA, or American Express.

SearchLink provides 24-hour on-line assistance.

SearchLink even gives you free on-line tips from trained SearchLink search specialists if you have problems or questions about your searching. Just type "SOS" when you're on-line!

SearchLink gets you to the information you want.

If you've ever wanted to access databases offered by ADP Network Services; BRS; Data-Star; Datasolve; DataTimes; Dialog; G-Cam Serveur; NewsNet; Pergamon InfoLine; SDC; Questel; or VU/TEXT, SearchLink will access databases from all of them—without a special subscription or knowledge of special search languages.

We can't list all of SearchLink's more than 800 databases, but just to give you an idea, here are *some* of the databases available under the topic "COMPUTER."*

- Business Software Database
- COMPENDEX®
- Computer Database
- COMPUTERPAT
- INSPEC
- Menu—The International Software Database
- Microcomputer Index
- Online Microcomputer Software
- SUPERTECH

And here are just a few of the other popular databases you can access with SearchLink.

- ABI/INFORM
- Chemical Abstracts
- Disclosure *(Selected databases)*
- Donnelley Demographics
- Dun & Bradstreet *(Selected databases)*
- ERIC
- PTS PROMT
- TRINET
- Trademarkscan
- Standard and Poor's Corporate Descriptions

Call 800-843-7337 now!

Put the power of knowledge to work for you right now. Call 800-843-7337 (THE-SEER) on your computer and get the answers you need to stay ahead.

*A complete list of the databases is available on SearchLink.

SEARCHLINK

From Macworld

Your link to the world of information.

MACWORLD
A CWCI Publication
An International Data Group Company

An International Data Group Service

SearchLink is sponsored by the National Federation of Abstracting and Information Services.

NFAIS is a professional association of database producers.

Circle 649 on reader service card



Circle 21 on reader service card

MAC INKER™

Re-ink any Fabric Ribbon **automatically for less than 5 cents.**

MAC INKER IM (Imagewriter I/II) $42.00
Universal Cartridge or Spool MAC INKER (specify) **$68.50**
Multicolored MAC INKER (re-inks 4 color Imagewriter cartridges) $80.00
Heat Transfer MAC INKER $70.00

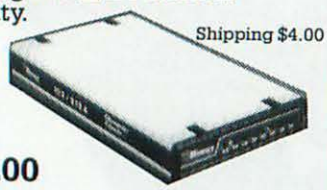


Shipping $4.00

■ Lubricated, Dot Matrix Ink extends print-head life, $3.00/bottle, available in black, brown, red, green, yellow, blue, purple, orange, gold and silver. ■ > 70,000 sold since 1982 (we are older than the MAC), > 8000 printers supported. ■ Imgwr. Cartridges top quality, life guaranteed, $7.00. Heat Transfer $9.00 (any color).

MERCURY MODEM

Really 100% Hayes* compatible ■ 300/1200 baud. Speaker. Front Panel Lights. ■ 24 months warranty.



Shipping $4.00

$149.00

*Hayes is a trademark of Hayes Microproducts.

DATA SWITCHES (any type)

MACINTOSH MULTIPORT SWITCH (9 pin), (or 8 pin for MacPlus). Connect up to 4 peripherals to your printer or modem port.

$50.00



Shipping $4.00

SUPERCHROMA™

Super Color for your MAC.

- **256 colors on screen** from a palette of 262,144 colors.
- **640 × 480** Resolution, greater than the Macintosh.
- Connects directly to the serial port. **No internal connections.**
- **If you know MacPaint™, you know Superchroma.** Paint directly on the Color Screen or load & color any MacPaint file or Macintosh screen. Any business, scientific application, artist drawing or graphic design can be enriched by superb color with the ease and friendliness you expect from the Mac... and
- **Print on the Imagewriter II** using a 4 color ribbon... or get the
- **Color Copier Option.** Print on paper or create immediately professional OVERHEAD COLOR transparencies ... or
- Connect to a **Film Recorder.** (i.e. Polaroid Palette).
- With the **Enhanced Video Option,** digitize, manipulate and color **video images in real time!!!...**
- Use any standard camera (NTSC, PAL), VCR, large-screen projectors, etc. This is just a fraction of what you can do with Superchroma. With the new color software available, the proverbial sky is the only limit. **Beyond power, beyond belief, beyond expectation!**

SUPERCHROMA System, including Chromapaint™ Software, Monitor and Superchroma™ Color Engine $2995.00
+ shipping

Color Copier Option $4500.00

Enhanced Video Option $1995.00

RASCAL™ Color Development System $ 250.00

90 days warranty

Chromapaint and Rascal are Trademarks of the Reed College, Portland OR. The Reed College developed the new revolutionary RASCAL Color Language. Mac Paint is a Trademark of Apple.

Order Toll Free. Call or write for free brochure. **1-800-547-3303**
In Oregon 503-626-2291 (24 hour line)

We are and always will be your

Computer Friends®

14250 N.W. Science Park Drive, Portland, Oregon 97229 Telex 4949559

Dealer inquiries welcome.

Circle 271 on reader service card

need repairs abroad, since Apple dealers generally only service equipment designed for their country. Also, your Apple warranty or AppleCare service contract is valid only in the country of purchase. For warranty repairs or AppleCare service, you must return the malfunctioning equipment to the country where you bought it. Therefore, be sure you break in new equipment thoroughly before exporting it so that any problems can be corrected on the warranty's home turf before you leave.

A Mac is too big to fit under most airplane seats. It fits in the overhead bin on some planes, or you may be able to put it in the coat closet. If you decide to check your Mac, put it in its original shipping carton or in a special, expensive hard-shell case—and be prepared to pay an extra baggage charge.

Your disks will probably survive the X rays used to inspect checked and carry-on baggage, but to be safe, put them in a lead-lined pouch (available at photography stores). Have your hard disk drive inspected by hand.

In order to bring your Macintosh system into a foreign country, you may have to fork over a stiff security deposit. To avoid ponying up the deposit, buy a *carnet* from the U.S. Council for International Business, which has offices in New York, Los Angeles, San Francisco, and Schaumburg, Illinois. Canadian travelers should apply to the Canadian Chamber of Commerce, Commerce House, 1080 Beaver Hall Hill, Montreal, Quebec H2Z 1T2.

And to transport your 16-bit high-tech Macintosh into a country outside the "free world," you'll need a special license from the U.S. Department of Commerce. Allow four months to get the license. For more details on carnets, licenses, customs, insurance, and baggage handling, see "The Macintosh Passport" in the November 1985 *Macworld*.

If you're going to be overseas for a long time, you may want to buy equipment there. Be aware, though, that the keyboard and software are set up for the local language. I'd recommend taking your own U.S. keyboard and System Tools disk instead of the ones that come with

(continues)

Value Line's new software:

For the complete investor.

EDITOR'S CHOICE
PC Magazine

$39 Trial

Don't let un-integrated investment software break you up. Try VALUE/SCREEN *Plus. It seamlessly joins together the three critical investment management functions.*



Simply awesome.
—*T.J.M.*

Amazingly complete.
—*B.A.L.*

A quantum leap forward.
—*J.A.H., Jr.*

A valuable, easy-to-use, foolproof tool. —*C.R.R.*

Well done and very useful. —*R.S.E.*

Stock Selection

You specify the criteria your stocks should meet. You push a button. VALUE/SCREEN *Plus* instantly screens its entire database and provides full reports on all the stocks that meet your criteria, however demanding.

Portfolio Management

You enter stock ownership information and combine it with Value Line's investment data and projections. You push a button. VALUE/SCREEN *Plus* stores the portfolios and gives you formatted or customized reports.

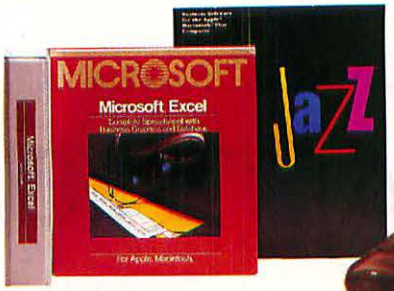
Spreadsheet Files

You select the stocks and data you want to analyze in your spreadsheet software, such as Microsoft Excel or Jazz. You push a button. VALUE/SCREEN *Plus* instantly loads any of this data into your spreadsheet files.

$39 Trial

If you act right now we'll send you the complete software package—which regularly sells for $95—for only $39. What's more, we'll include 2 monthly data disks worth $29 each, *absolutely* free. And there are no timesharing charges, since up-to-date data is mailed to you regularly on disk.

Microsoft Excel and Jazz are among the popular spreadsheets to which VALUE/SCREEN *Plus* can be linked.



☐ I have an Apple Macintosh, 512K or Plus, and want to take the $39 two-month trial.
☐ Please send information on the ☐ IBM or ☐ Apple version.
☐ My check for $39 is enclosed (NY residents, add sales tax)
☐ Please bill my (circle one)
Visa MasterCard American Express

Dept. 85RK01

Account # _____ Exp. Date _____

Signature _____

Name _____

Address _____

City, State, Zip _____

Purchase is non-refundable and non-assignable.

800-654-0508
Value Line Software
711 Third Avenue, NY 10017

Excel is a trademark of Microsoft, Inc. Jazz is a trademark of Lotus Development Corp.
VALUE/SCREEN *Plus* is a registered trademark of Value Line, Inc.

Circle 591 on reader service card

the local Mac. Also, expect to pay considerably more for hardware and software overseas.

Q Underlined Blank Spaces

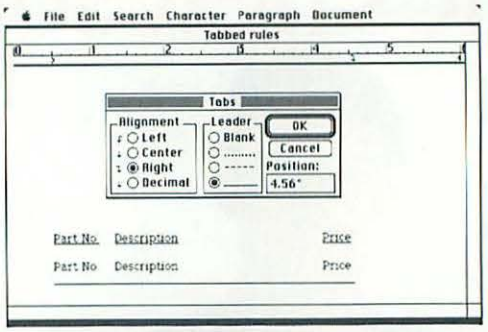
When I use *MacWrite* or *Microsoft Word* version 1.05, I can't extend the underline style to cover an entire line—it underlines only the text. How can I underline the whole line, including the blank space?

Virginia Hays
Mountain View, California

A You can get underlined blank spaces by pressing the space bar instead of Tab. However, tabs are better than spaces for lining up columnar text, such as a table. With spaces alone it's hard to line up columns, and the alignment is ruined if you change the font or font size.

Why not use bold or italics instead of underline? Underlined text is a fossil of the Early Pleistocene Typewriter period, when only typesetters had access to italics and boldface. You'll notice that typeset documents rarely contain underlined text, because underlined text is generally considered harder to read. They use bold for headings and italics for emphasis, special terms, and book titles.

If you want a rule below a line of text—for example, after a table head—type a separate line of underscore characters (Shift-hyphen). Better yet, in *Microsoft Word,* use the Tabs command from the Format menu to create a right-aligned tab with an underscore leader (see "The Ruling Principle"). This method creates a solid rule, and you can change its length by dragging the tab marker in the formatting ruler. For more tips about *Word,* see "Insights on Microsoft Word" in this issue.



The Ruling Principle

When you select underlined text, the spaces are not underlined. In Microsoft Word *version 1.05, you can set a right-aligned tab with an underscore leader to create a rule under column heads. Choose the smallest point size for the rule to bring it as close as possible to the bottom of your text.*

Q Squashed Lines

For nearly two years we have used an ImageWriter I and an ImageWriter II to print lengthy reports with a five-line header at the top of each page. A few months after putting each printer into service, we began getting squashed lines in the header. The situation has steadily worsened and is now a chronic problem with the ImageWriter I. It happens with both *MacWrite* and *Microsoft Word* and with every system version to date. We have tried different kinds of tractor-feed

(continues)

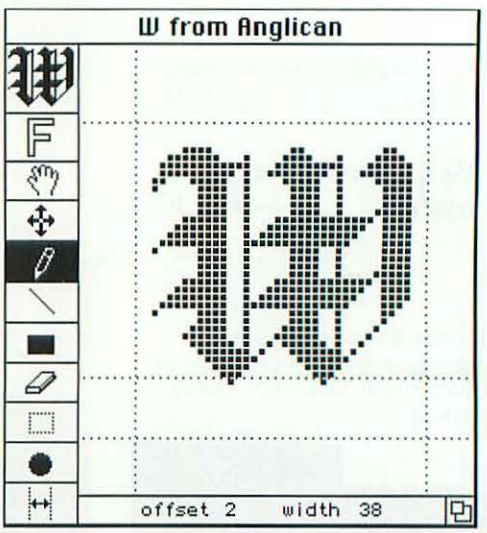
The Best Bitmap Font Editor.

Imagine gaining absolute control over your letters, documents, reports, and pictures, by customizing the actual printed letters themselves. Create unique individual characters never seen before. Call these characters up with the stroke of a key. Size them precisely and repeatably up to 127 points high.

With FONTastic Plus, all this will become second nature to you. FONTastic Plus gives you unlimited access to every Macintosh™ bitmap font. And the power to make as many new fonts as you can imagine. Text fonts, display fonts, symbol fonts, logos or foreign language fonts are all as simple as clicking the mouse.

Fatbits editing like MacPaint™—but with three sizes of fatbits—makes it easy to create and modify characters. Use cut and paste to copy common letter parts from one character to another. Background and guideline layers help maintain a consistent look from letter to letter. An integrated font mover makes installing fonts as easy as cut and paste. Instant print samples let you see how the font looks in print, without having to install it and type a sample.

FONTastic Plus is the next step in font editing. Fast, powerful, easy to use, and only $79.95.



FONTastic™ PLUS

ALTSYS CORPORATION

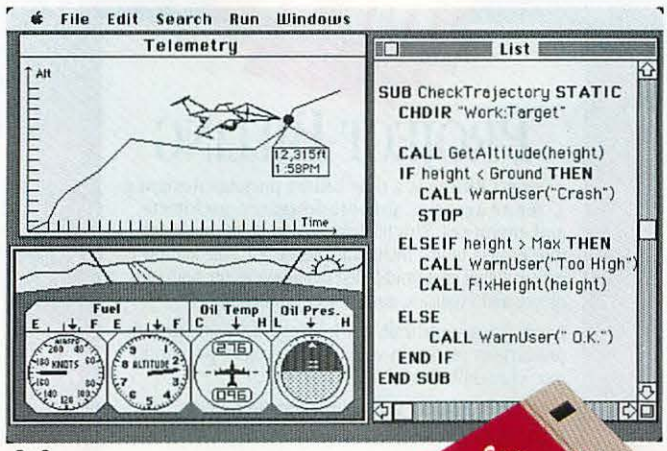
720 Avenue F, Suite 108
Plano, Texas 75074 (214) 424-4888

Circle 227 on reader service card

Take the easy path to power.

More people use our Microsoft® BASIC than any other language on the Macintosh.™ Why? Because it's a powerful language that's simple and easy to use. But now there's a new, more advanced version available.

Introducing Microsoft's BASIC Interpreter for the Macintosh, Version 3.0.



Start with programming itself. We've used all the power of the Macintosh to make the process as effortless as possible. The full-screen editor and interactive debugging let you get your programs up and running quickly. Faster and easier than with any other language.



So advanced it's BASIC.

Don't worry about being restricted by the language. This new version features improvements like a block IF/THEN statement to make structured programming a snap. And we've just added a complete programmer's toolbox from Clear Lake Research. So now building your most advanced programs can be as simple as putting the pieces together. And it doesn't stop there.

Experienced programmers will like the easy access to the Macintosh ROMs—over 140 routines available through the toolbox. And there's advanced support for the Mac's sound and graphics, as well as the new hierarchical file system. There's even support for the Apple® LaserWriter.

Lastly, we've added a new runtime interpreter to the package. So now you can share your finished programs without extra cost or hassle.

When you look at all that the Microsoft BASIC Interpreter has to offer, the choice is clear. Even the price is easy to handle. Only $99 for the most popular language on the Macintosh.

If you're ready to stretch your programming muscles, give us a call at (800) 426-9400. In Washington State and Alaska, (206) 882-8088. In Canada, call (416) 673-7638. We'll give you the name of your nearest Microsoft dealer.

Microsoft® BASIC Interpreter for the Macintosh.

The High Performance Software.

Microsoft is a registered trademark of Microsoft Corporation. Apple is a registered trademark of, and Macintosh is a trademark licensed to Apple Computers, Inc.

Circle 646 on reader service card

POWERFUL TIME BILLING & MAIL LIST FOR YOUR MAC!

NEW from Satori Software

LEGAL BILLING

Legal Billing is a time billing package designed specifically for attorneys and accountants. **Legal Billing** is a full featured system, and yet it is incredibly easy to use. Most firms are up and running in 30 minutes or less!

It's no wonder **Legal Billing** has prompted such comments as this: *"You have produced an excellent product. I would highly recommend it to all attorneys – large or small firms – it paid for itself in the first month."*

Here's what **Legal Billing** can do for your office:

- Allows simple and fast entry of information, automatically sorted by date, client, employee and activity
- Productivity reports customized by employee, client, date and activity
- Automatic interest added to past due balances
- Client statements formatted in most any way
- Multiple billing rates for each employee
- Aging Report can be customized
- Can be used with Microsoft Word
- True Work-In-Progress feature holds activity details from month to month

$595.

PROJECT BILLING

Project Billing is a time billing package designed for ad agencies, graphic designers, architects and engineers. This package will track all aspects of your project billing including budgets for time and expense, actual costs and billed out amounts for both employee and expenses, and project profitability.

It will also automatically mark-up expenses, and provide productivity reports by employee or project, plus print your client bills in a variety of formats.

This is how **Project Billing** can help your office:

- Tracks employee productivity by cost and billable rates
- Automatically marks up expenses
- Provides profitability analysis by project
- Tracks budgeting of time and expense
- Prints statements and can add interest to past due balances
- True Work-In-Progress holds detail from month-to-month
- Enables progress (partial) billing, while holding all detail

$695.

BULK MAILER

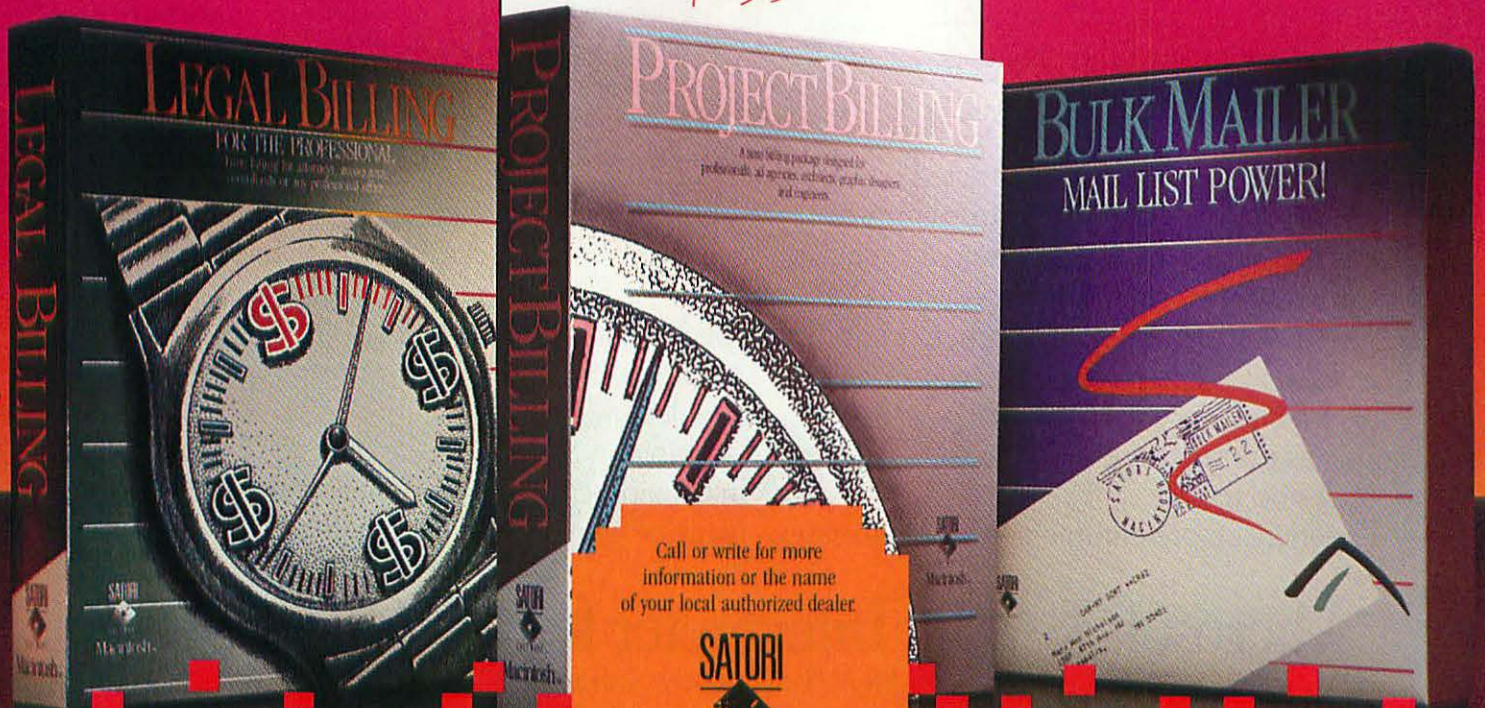
Bulk Mailer is a powerful program specially designed for managing mail lists. **Bulk Mailer** does everything you want in a mail list program, including duplication elimination, zip and alpha sorts, 1 to 4 up labels printed, easy-entry defaults, multiple label format, plus much, much more.

This is the only program to offer all these features:

- Duplication elimination
- Zip or alpha sort
- Car-rt sort or zip + 4
- 1 to 4 labels or roster format
- Powerful coding capabilities
- Sophisticated global editing and deleting
- Mail merge with Microsoft Word
- Easy-to-use entry defaults
- Coding and date expiration fields
- Large record capacity (up to 90,000 names)
- Hard disk compatible

$125.00 Bulk Mailer – up to 8,600 names

$350.00 Bulk Mailer + – up to 90,000 names



Call or write for more information or the name of your local authorized dealer.

SATORI SOFTWARE

Satori Software
2815 Second Avenue, Suite 590
Seattle, WA 98121 206/443-0765

paper and have been careful to avoid any binding of the paper feeding into the printers.

Gary Lehman
Muskogee, Oklahoma

A As pin-feed paper threads through an ImageWriter, it may buckle slightly as the perforation goes through the pinch roller (also called the paper bail), resulting in a flattened line. The glitch occurs about 1 inch from the top of the page on an ImageWriter II. The paper-feed path is different on an ImageWriter I, so the glitch occurs about ½ inch from the top of the page. Nothing prints that close to the top unless you choose the No Breaks Between Pages option in the Page Setup dialog box or start the paper unusually low, with the perforation below the pinch roller.

To avoid the squashed type, try a different weight of paper or switch to single-sheet paper (use the cut-sheet feeder on your ImageWriter II). It may also help to apply light, even tension to pin-feed paper coming out of the printer. Try pulling gently or attaching a light weight, such as a clothespin or a binder clip, to the exiting paper.

Q **Audio Digitizer**
When I owned an Atari 800, I read an article in the July 1983 issue of *Antic* that explained how to construct a circuit for connecting a microphone to the computer's built-in analog-to-digital (A/D) converter, thereby digitizing speech for later manipulation and playback under software control. It must be possible to do this with the Mac since it contains A/D converters, two of which are situated in the mouse port. I am looking for a simple program, written in Microsoft BASIC, that would allow me to use my Mac for the same type of application.

Kyle Harrison
Cypress, Texas

A The Berkeley Macintosh Users Group (BMUG, 1442A Walnut St. #62, Berkeley, CA 94709, 415/849-9114) sells an A/D kit called MacRecorder for $50. It includes the parts and instructions for constructing a voice digitizer and the software that turns a digitizer-equipped Mac into a $2000 tape recorder. The software, which is written in FORTH, lets you record sounds, save them on disk, play them back, and edit them as you would edit text in *MacWrite*. The whole schmear is described in the Fall 1985 *BMUG Newsletter*.

Aldus PageMaker Help

Tip: Those who use Aldus's *PageMaker* with a hard disk will be glad to know they needn't have the *PageMaker* master disk always on hand to access its help files. The help files can be accessed directly from the hard disk. Here's how:

1. Use the Finder to copy the Help Folder from the master disk to the System Folder on the hard disk.

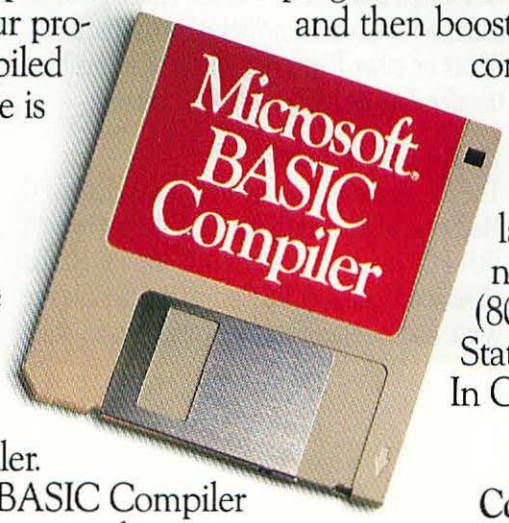
2. Create a small document with any application (*MacWrite, Microsoft Word,* whatever) and save it with the name Helpstuff in the System Folder on the hard disk. Be sure you save it in the System Folder, not in the Help Folder!

3. When you choose Help in *Page-*

(continues)

Break the BASIC speed limit.

BASIC programmers be warned: You could be breaking records before you know it. Microsoft's new BASIC Compiler for the Apple® Macintosh™ gives your programs the raw speed of compiled code. And faster performance is just the beginning.



A BASIC synergy.

This compiler has all the advanced features that made our BASIC the Macintosh leader. From graphics and sound to support for the new HFS, this BASIC is a killer.

And while the Microsoft® BASIC Compiler zips right along solo, combining it with our BASIC Interpreter makes a development system that can't be beat. Write and debug your programs with our interactive interpreter, and then boost into high gear with the compiler. All while using the most advanced BASIC available.

So shift into the passing lane. For the name of your nearest Microsoft dealer, call (800) 426-9400. In Washington State and Alaska, (206) 882-8088. In Canada call (416) 673-7638.

Microsoft® BASIC Compiler for the Macintosh
The High Performance Software

Microsoft BASIC Compiler for the Macintosh is a version of the Absoft BASIC Compiler, licensed from Absoft Corporation, Rochester Hills, Michigan. Microsoft is a registered trademark of Microsoft Corporation. Apple is a registered trademark and Macintosh is a trademark of Apple Computer, Inc.

Circle 647 on reader service card



MARRIAGE OF CONVENIENCE

PC MacBridge weds Macintoshes and IBM PCs for a complete office network

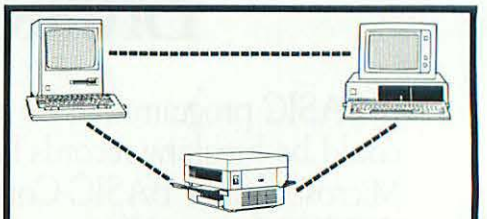
For too long, Macintoshes and PCs have been feuding like the Hatfields and McCoys, unwilling to even acknowledge each other's existence. But now, with PC MacBridge as matchmaker, the two are brought together in a network where they can love, cherish, and share files and printers with each other.

All in the family

PC MacBridge Plus is a family of products that enable Macintoshes and IBM PCs to share information and peripherals within an AppleTalk network. PC MacBridge Plus includes a PC half-card with network software. Also included are LaserScript/Plus, LaserGraph and MailBox software. LaserScript/Plus and LaserGraph allow an IBM PC to use the LaserWriter or other PostScript printer while MailBox transfers files around an AppleTalk network.

Invite the relatives

The PC MacBridge family tree also includes PC MacServe,* which permits hard disk sharing by both IBM PCs and Macs within a network. PC MacTxt allows you to transform PC files into Mac files and vice versa. And PC MacSpool frees computers for other tasks during any print job.



PC MacBridge puts IBM PCs into the AppleTalk network for a lasting engagement.

PCs and Macs—The perfect couple

PC MacBridge is all you need to let your IBM PCs and Macintoshes establish a lasting marriage. Use PC MacBridge with any AppleTalk product, including Hayes' InterBridge. Ask your local dealer for PC MacBridge, or call (404) 662-0366 today.

TANGENT TECHNOLOGIES

5720 Peachtree Parkway • Suite 100 • Norcross, GA 30092 • (404) 662-0366
In Canada, call MCKENZIE BROWN LTD (416) 593-6880 • For Europe, call TRADE VENTURES (703) 435-3800

*Works in conjunction with MacServe from Infosphere

Apple, AppleTalk and LaserWriter are trademarks of and Macintosh is a trademark licensed to Apple Computer Inc. IBM is a trademark of International Business Machines Corp. InterBridge is a trademark of Hayes Microcomputer Products.

Circle 461 on reader service card

Maker, you see an Open-type dialog box. Open the System Folder on the hard disk and you see the Help Folder. Open the Help Folder and you see the individual help files. Open the help file that best pertains to your current question.

Paul Greenberg
Norwich, New York

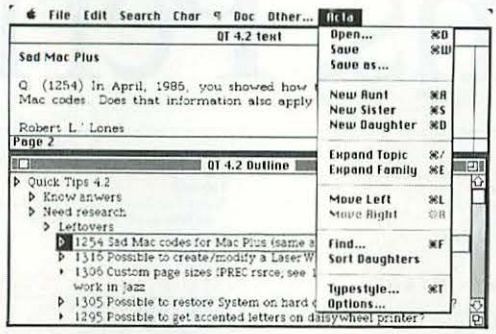
More Menus

Tip: Key Caps and many other desk accessories have their own menus. When you choose a desk accessory, it installs its menu at the right end of the menu bar. But *Microsoft Word* has lengthy menu titles that don't leave much room for desk accessory menus. You can change Search to Find, shorten Character to Char, and so on, using Apple's resource editor, *ResEdit* (see "Mini-Titled Menus").

To change menu titles, start *ResEdit* and open *Microsoft Word.* A window appears, listing the types of resources in *Word.* Open the menu-type resources. Another window opens, listing the individual menu resources by number. The menus are numbered sequentially from right to left, starting with the Apple menu, 256, and ending with the Document menu, 262. Open the menu resource and in the menu-editing window that appears, change the title to the shorter one you want.

William H. Adams
Beaumont, Texas

This tip works with any application, though the menu numbers may be different.



Mini-Titled Menus

Make more room for desk accessory menus in the menu bar by shortening menu titles with ResEdit. *Here,* Microsoft Word *version 1.05 menus Character, Paragraph, and Document are abbreviated Char, ¶, and Doc, leaving plenty of room for the desk accessories* Other *and* Acta.

FullPaint Screen Snapshots

Tip: Almost everybody knows that pressing ⌘-Shift-3 puts a snapshot of the screen in a *MacPaint* file. If you use *FullPaint* instead of *MacPaint,* you might like the snapshots to be *FullPaint* files so that opening one from the Finder automatically starts *FullPaint.* All you do is use *Fedit* to change the first occurrence of MPNT to PANT in the System file. After you've made this change, screen shot files get the creator attribute PANT, which identifies them as *FullPaint* documents.

Howard Upchurch
Garland, Texas

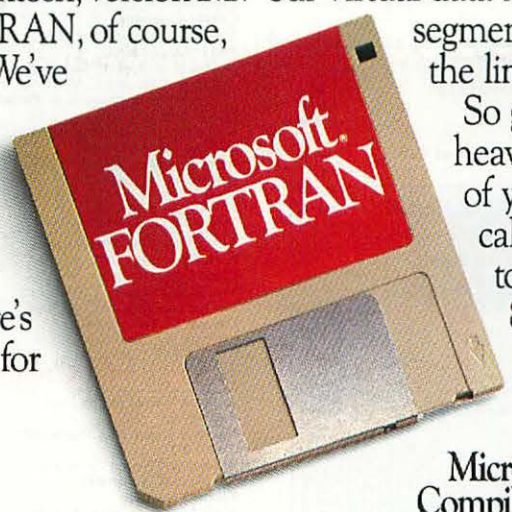
You can also make this change using ResEdit *version 1.0 (dated 8/20/86) or a later version. Start* ResEdit, *and then open the System file, the FKEY resources, and the FKEY 3 resource. Find the string MPNT and change it to PANT.*

Send tips or questions to Quick Tips, Macworld, *501 Second St. #600, San Francisco, CA 94107. Send electronic mail to CompuServe 70370,702 or The Source BCW440. All published submissions become the property of* Macworld. □

Mainframe muscle for your Mac.

Beef up your Macintosh™ with the fastest FORTRAN around. Microsoft's FORTRAN Compiler for the Apple® Macintosh, version 2.2.

This is full ANSI '77 FORTRAN, of course, but there's more to the story. We've also added enhancements from the proposed ANSI FORTRAN '8x extensions. As well as support for Mac graphics, sound, and the new Hierarchical File System. There's even a programmer's toolbox for the Macintosh ROM.



Cutting problems down to Mac size.

This FORTRAN tackles mainframe problems without flinching. Our IEEE Math package handles numbers like a champ. And our virtual data arrays and dynamic program segments mean you're freed from the limits of available RAM.

So give your Macintosh some heavyweight help. For the name of your nearest Microsoft dealer, call (800) 426-9400. In Washington State and Alaska, (206) 882-8088. In Canada call (416) 673-7638.

Microsoft® FORTRAN Compiler for the Macintosh

The High Performance Software

Microsoft FORTRAN Compiler for the Macintosh is a version of the Absoft FORTRAN Compiler, licensed from Absoft Corporation, Rochester Hills, Michigan. Microsoft is a registered trademark of Microsoft Corporation. Apple is a registered trademark and Macintosh is a trademark of Apple Computer, Inc.

Circle 648 on reader service card

Programs, Peripherals,

Backup & Utility Software

Apple Computer Switcher Construction Set	14.00
Central Point Software Copy II Mac *(Includes MacTools)*	20.00
Dreams Of The Phoenix Quick & Dirty Utilities Vol. 1 or 2	27.00
FWB Software Hard Disk Util	57.00
Hard Disk Backup	39.00
Ideaform Mac Labeler *(Version 2.2)*	29.00
Infosphere MacServe *(Network Software)*	249.00
LaserServe	125.00
MacMaster Systems Fedit Plus V2.0 *(HFS Compatible)*	36.00
MacMemory, Inc. MaxRam & MaxPrint	37.00
MacroMind MUD *(MacroMind Utility Disk)*	32.00
Mainstay Disk Ranger or MacSpool	32.00
N'cryptor	26.00
Flashback *(Hard Disk Backup Utility)*	39.00
Nevins Microsystems TurboCharger *(Version 2.0)*	39.00
New Canaan MicroCode Mac Disk Catalog II *(512K)*	32.00
MDCFinder *(512K)*	20.00
PBI Software HD Back-Up *(Backup for MFS & HFS)*	29.00
HFS Locator Plus *(DA Organizer for HFS)*	27.00
Softstyle Bluestart, Epstart V2.0, Jetstart, or Toshstart	29.00
Laserstart	59.00
TI Start or ColorMate V2.1	49.00
ColorMate Art	29.00
PlotStart w/Cable	69.00
SuperMac Software SuperSpool	39.00
Williams & Macias myDiskLabeler	25.00
myDiskLabeler w/Color	34.00
myDiskLabeler for LaserWriter	35.00

Desk Accessory Programs

Affinity Microsystems Tempo	56.00
Batteries Included Battery Pak *(9 Desk Accessories)*	28.00
Borland SideKick with PhoneLink	59.00
Cortland Top Desk *(7 New Desk Accessories)*	35.00
Imagine Software Smart Alarms & Appointment Diary	39.00
Silicon Beach Software Accessory Pak #1	21.00

Languages

Apple Computer MacPascal	99.00
Macintosh 68000 Development System	159.00
Borland Turbo Pascal	59.00
Megamax, Inc. Megamax C Compiler	175.00
Microsoft Microsoft Basic Interpreter 3.0	65.00
Microsoft Basic Compiler 1.0	125.00
Microsoft Fortran Compiler 2.2	169.00
Think Technologies Lightspeed C	129.00
Lightspeed Pascal	89.00
TML Systems TML Pascal V2.0	69.00
TML Source Code Library	59.00
TML DataBase Toolkit	65.00
True Basic, Inc. True Basic	89.00
True Basic Runtime	89.00
Algebra, Pre-Calculus, Calculus, Statistics, Trigonometry, 3D Graphics, Discrete Math, Probability, & Chippendale utilities *(each)*	36.00
Zedcor, Inc. ZBasic	65.00

Communications Software

Apple Computer MacTerminal	99.00
Compuserve Compuserve Starter Kit	27.00
DataViz MacLink Plus with Cable	139.00
Hayes Microcomputer Smartcom II	89.00
Software Ventures Microphone	59.00
Think Technologies, Inc. InBox-Starter Kit *(3 Personal Connections)*	215.00
InBox-Additional Personal Connections	59.00

DataBase Management

Ashton-Tate dBase Mac	309.00
Blythe Software Omnis 3 Plus	279.00
Omnis 3 Multiuser *(2-5 Users, Specify MacServe or Corvus)*	569.00
Borland Reflex	59.00
Forethought FileMaker Plus	159.00
Microsoft Microsoft File 1.04	110.00
Odesta Helix *(Version 2.0)*	105.00
Double Helix	275.00
ProVUE Development OverVUE 2.0d	149.00
Telos Software Business FileVision	199.00

Business Software

Apple Computer MacProject	159.00
Batteries Included Isgur Portfolio System	105.00
Time Link	28.00
Cricket Software Cricket Graph	129.00
Micro Planning Software Micro Planner Plus	299.00
Microsoft Microsoft Works 1.0	189.00
Microsoft Multiplan 1.1	105.00
Microsoft Chart 1.0	72.00
Microsoft Excel 1.03	225.00
Legisoft/Nolo Press WillWriter V2.0	32.00

Orders Only
1-800-832-3201

In Connecticut call 378-3662 or 378-8293
Customer Service (203) 378-3662
Monday thru Friday 9 a.m. to 9 p.m.
Saturdays 10 a.m. to 6 p.m. *(Eastern Time)*

Our Policies

- We Accept MASTERCARD and VISA with no added surcharge.
- Your credit card is not charged until we ship.
- If we must ship a partial order the shipment that completes the order is sent freight free.
- If you are ordering by mail, we accept private and company checks. For fast delivery, send cashier's check, certified check, or money order. With MASTERCARD and VISA orders include card number and expiration date. Connecticut residents add 7.5% sales tax.
- UPS Next Day Air & 2nd Day Air Available.
- Sorry, we cannot accept COD orders.

Shipping

- **Software Only:** Continental US: $3.00 minimum charge for Shipping & Insurance. APO/FPO orders shipped 1st class mail, add 3% *($5.00 Min.)* **Hawaii:** Add 10% *($15.00 Min.)* **Alaska:** Add 6% *($10.00 Min.)* **Canada:** Add 12% *($15.00 Min.)* **Foreign Orders:** Add 20% *($35.00 Min.)*
  Hardware Items: Please call for shipping charges.
- All goods are new and are guaranteed by the manufacturer, but we cannot guarantee machine compatibility. Due to software copyright laws, all sales are final. Defective software will be replaced immediately by the same item. Defective hardware will be replaced or repaired at our own discretion. Call customer service at *(203) 378-3662* to obtain a Return Authorization Number before returning goods for replacement. Products purchased in error subject to a 20% restocking fee. All items subject to availability. Prices subject to change without notice.

Execucom Mindsight	179.00
Layered Notes For Jazz, Excel, PageMaker, or Microsoft Works *(each)*	42.00
Lotus Jazz *(Version 1.A)*	179.00
Pro Plus Software Market Pro	259.00
Satori Software Legal Billing	389.00
Project Billing	449.00
Bulk Mailer	75.00
Bulk Mailer Plus	229.00

Word/Idea Processors

Apple Computer MacWrite	99.00
Living Videotext More	159.00
Think Tank 512	99.00
Microsoft Microsoft Word 3.0	239.00
OWL International Guide	95.00
Symmetry Acta	39.00
Target Software Voila!	53.00
T/Maker Company WriteNow	105.00

Spelling Checkers

A.L.P. Systems MacProof V2.0	99.00
Batteries Included Thunder! *(Interactive Spelling Checker)*	28.00
Creighton Development MacSpell+ *(Requires 512K)*	55.00
EnterSet, Inc MacGas *(with Glossary & Thesaurus)*	55.00
Greene, Johnson Inc. Spellswell *(60,000 word Dictionary!)*	52.00
Lundeen & Associates WorksPlus Spell	32.00
Target Software MacLightning 2.0 w/Merriam Webster Dictionary	53.00
Additional Thesaurus Library	29.00
Medical Dictionary or Legal Dictionary	53.00

Desktop Publishing

Boston Software Publishers The MacPublisher II	139.00
Mac-Hy-Phen	69.00
MacIndexer	62.00
Manhattan Graphics Ready, Set, Go!3	169.00
Ready, Set, Go! Desk Design	37.00
Orange Micro, Inc. Ragtime *(Integrated Page Processing)*	239.00
Solutions, Inc. Glue *("Print to Disk" Capability)*	35.00

Accounting Packages

BPI BPI Entry Series-General Accounting	129.00
Chang Labs *New Enhanced Version III Modules!* Rags to Riches GL, AR, or AP	125.00
Rags to Riches Three Pack-*(GL/AR/AP)*	299.00
Inventory Control	245.00
Professional Billing	245.00
Professional Three Pack-GL/Professional Billing/Payables	349.00
Continental/Arrays The Home Accountant	62.00
Digital, Etc. *Turbo* Maccountant	289.00
Monogram Dollars & $ense	81.00
Business Sense *(GL/AR/AP)*	339.00
Palantir GL, AR, or Inventory Control *(each)*	59.00
Peachtree Back To Basics GL, AP, or AR *(each)*	89.00
Back To Basics Three Pack *(GL/AR/AP)*	129.00
Sierra On-Line MacOneWrite CD, AR, or GL *(each)*	39.00
MacOneWrite Three Pack *(GL/AR/CD)*	59.00

Statistics Packages

BrainPower StatView 512 Plus	179.00
Cricket Software Statworks	79.00
Statware, Inc. Stat80 *(Professional)*	279.00
Systat Systat *(Version 3.0)*	459.00

Graphics Software

Altsys Corp. FONTastic	27.00
Ann Arbor Softworks Full Paint	55.00
Apple Computer MacPaint	99.00
Broderbund Print Shop	49.00
Toy Shop	41.00
Casady Company Fluent Fonts *(Two-Disk Set)*	29.00
Fluent Laser Fonts *Choice of: Bodoni, SanSerif, Ritz & Right Bank, Monterey, Caligraphy & Regency, or Prelude*	49.00
Dubl-Click Software World Class Fonts! Vol. 1 or Vol. 2	29.00
Hayden VideoWorks	59.00
Innovative Data Design Paste-Ease *(Volumes I & II)*	35.00
Miles Computing Mac The Knife Volume III or Volume IV	27.00
Mindscape ComicWorks	49.00
GraphicWorks	49.00
Silicon Beach Software SuperPaint	55.00
Silicon Press	42.00
Springboard Certificate Maker	36.00
Symmetry PictureBase	45.00
T/Maker Click Art Letters or Personal Graphics	29.00
Click Art Publications or Effects	29.00
Click Art Letters II or Click Art Holidays	29.00
Click Art Business Image	29.00

CAD Products

Apple Computer MacDraw	159.00
BrainPower DesignScope	129.00
Challenger Software Mac 3D *(Enhanced Version 2.0)*	129.00
Cricket Software Cricket Draw	179.00
Dreams Of The Phoenix Phoenix 3D Level One	27.00
Enabling Technologies Easy 3D	69.00
Professional 3D	199.00
Innovative Data Design MacDraft *(Updated Version 1.2)*	159.00
MicroSpot MacPlot	119.00
MacPlot Professional	234.00

Educational/Creative Software

Addison Wesley Puppy Love	14.00
Baudeville Ted Bear Discovers...Rainy Day Games	20.00
Guitar Wizard	20.00
Broderbund Sensei Geometry	65.00
Davidson & Associates Speed Reader II	39.00
Math Blaster or Word Attack!	28.00
Electronic Arts Finball Construction Set	27.00
Deluxe Music Construction Set V2.0	64.00
First Byte Kid Talk, Speller Bee, or Math Talk	42.00
First Shapes	32.00
Great Wave Software KidsTime	29.00
Hayden MusicWorks	32.00
Score Improvement System for the SAT	59.00
Score Improvement-Achievement Tests	59.00
Kette Group Studio Session	69.00
Micro: Maps MacAtlas U.S.A. or MacAtlas World	49.00
Microsoft Hands On Excel	32.00
Learning Multiplan & Chart	39.00
Mindscape Perfect Score SAT w/The Perfect College	47.00
Rubicon Publishing Dinner at Eight	35.00
Silver Palate Collection	29.00
Dinner at Eight-Silver Palate Bundle	59.00
Simon & Schuster Typing Tutor III	35.00
Paper Airplane Construction Set	24.00
Software Concepts Concepts Computerized Atlas	39.00
Spinnaker Typing Made Easy	32.00
Springboard Early Games for Young Children	29.00
Easy as ABC	29.00

Phenomenal Prices...

Game Software

Accolade Hard Ball	25.00
Activision Shanghai or Hacker	27.00
Hacker II: The Doomsday Papers	32.00
Championship Star League Baseball	22.00
Alter Ego *(Male or Female Version)*	36.00
Tass Times In Tonetown	29.00
Artworx Bridge 4.0	21.00
Avalon Hill Mac Pro Football	32.00
Broderbund Ancient Art of War	27.00
Bullseye Software	
Fokker TriPlane Flight Simulator	35.00
Ferrari Grand Prix	35.00
Electronic Arts Autoduel	34.00
ChessMaster 2000	31.00
Patton vs Rommel or One-On-One	27.00
SkyFox, Archon, or Scrabble	27.00
EPYX Winter Games or Rogue	24.00
Temple of Apshai Trilogy	24.00
Hayden Software Sargon III	29.00
Infinity Software, LTD	
Grand Slam Tennis	28.00
Infocom	
Leather Goddesses of Phobos, Ballyhoo, Cutthroats, Hitchhiker's Guide, Moon Mist, Planetfall, Seastalker, Trinity, Wishbringer, Enchantor, Zork I, or Witness *(each)*	24.00
Zork II, Zork III, Sorceror, Suspect, Infidel, or A Mind Forever Voyaging *(each)*	26.00
Deadline, Spellbreaker, Starcross or Suspended *(each)*	29.00
Invisiclues-*Hint Booklets (each)*	6.00
Microsoft Flight Simulator 1.0	32.00
Mindscape	
Balance of Power	30.00
Deja Vu: A Nightmare Comes True	33.00
Indiana Jones: Revenge of the Ancients	25.00
James Bond 007: A View To Kill	24.00
James Bond 007: Goldfinger	24.00
King Of Chicago	32.00
Racter	27.00
Sinbad, S.D.I., or Defender of The Crown	32.00
The Uninvited	30.00
Origin Systems	
Exodus: Ultima III	38.00
PBI Software	
Strategic Conquest *Plus*	39.00
Practical Computer Applications	
MacGolf *(Version 2.0)*	36.00
Psion	
Psion Chess *(3D & Multi-Lingual)*	31.00
Q Ware, Inc. OrbQuest	35.00
Sierra On-Line Black Cauldron	25.00
King's Quest I, II, or III *(each)*	32.00
Silicon Beach Software	
Enchanted Scepters	21.00
Dark Castle	28.00
World Builder	42.00
Simon & Schuster	
Star Trek *(The Kobayashi Adventure)*	24.00
Sir-Tech Mac Wizardry	36.00
Spectrum Holobyte GATO	26.00
Orbiter	27.00
Sublogic	
JET	35.00

Disk Drives/Hard Disks/Upgrades

AST Research	
AST-2000 *20 MB External Hard Disk with 20-MB Cartridge-Tape Backup for the Macintosh Plus.*	1795.00
AST-4000 *74 MB External Hard Disk with 60-MB Cartridge-Tape Backup for the Macintosh Plus.*	4735.00
Dove Computer Corporation	
MacSnap Model 524 *(512K to 1MB Upgrade)*	139.00
MacSnap Model 548 *(512K to 2MB Upgrade)*	389.00
MacSnap Plus 2 *(MacPlus to 2MB Upgrade)*	259.00
MacSnap Plus 2H *(MacPlus to 2MB Upgrade w/1MB Chips)*	799.00
MacSnap Plus 4H *(MacPlus to 4MB Upgrade w/1MB Chips)*	1599.00
Ehman Engineering	
800K Disk Drive	219.00
20HD *(20MB SCSI Hard Drive)*	Call
Iomega	
Single Cartridge Drives	
Bernoulli Box 10MB w/SCSI	1059.00
Bernoulli Box 20MB w/SCSI	1199.00
Dual Cartridge Drives	
Bernoulli Box 2-10MB w/SCSI	1629.00
Bernoulli Box 2-20MB w/SCSI	1899.00
10MB Cartridges *(3 Pack)*	159.00
20MB Cartridges *(3 Pack)*	209.00
Head Cleaning Kit	69.00
LoDOWN	
LoDown 20/20 Combo *(20 MB Hard Disk w/20MB Tape)*	1439.00
LoDown-T20 *(20 Megabyte Tape Drive)*	789.00
LoDown-20 *(20 Megabyte Hard Disk)*	889.00
MacMemory, Inc. *All MacMemory products carry a full two year warranty!*	
MaxPlus *(2MB Upgrade w/MaxRam/MaxPrint/MaxChill)*	265.00
MaxPlus Enhanced *(2.5MB w/MaxRam/MaxPrint/MaxChill)*	489.00
MaxSave *(Internal Recoverable Ram Disk For the MacPlus)*	79.00
MaxPack *(MaxPlus and MaxSave Bundle)*	339.00
MaxPort *("SCSI" Port for your Mac 512K)*	139.00
MDIdeas, Inc.	
HD-20 *(20MB Hard Disk w/SCSI)*	859.00
HD-30 *(30MB Hard Disk w/SCSI)*	1199.00
TDBK-20+ *(22MB Tape Backup)*	859.00
Mirror Technologies	
Magnum 800K External Drive	229.00
MagNet 20X *(External 20MB Hard Drive w/Cable)*	779.00
MagNet 30X *(External 30MB Hard Drive w/Cable)*	949.00
MagNet 30X *(External 30MB w/MacServe & Cable)*	995.00
MagNet 40/40 *(40MB w/40MB Tape, MacServe Included)*	2695.00
MagNet 85X *(74MB w/40MB Tape, MacServe & Cable)*	4495.00
Magnum Tape 20 *(20MB Backup)*	929.00
FastPort *("SCSI" Port for your Mac 512K)*	139.00
Personal Computer Peripherals	
MacBottom HD-21 *(20MB Hard Disk for MacPlus SCSI)*	869.00
PKI MeD 800K External Drive	189.00
ProAPP	
World's Fastest High-Capacity MacPlus SCSI Hard Disk System:	
ProAPP 40S Hard Disk System *(Sub-30msec. Voice Coil Technology)*	Call
ProAPP 20MB Hard Disk System *(Mac 128K,512K,MacPlus SCSI)*	Call
Western Automation Labs	
Dasch External RAMdisk *(2048KB)*	459.00

Modems

Hayes Microcomputing Interbridge	549.00
Smartmodem 1200	379.00
Smartmodem 1200 Mac w/Smartcom II & Cable	429.00
Smartmodem 2400	579.00
Transet 1000-128K	269.00
Transet 1000-512K	359.00
Transet 1000 Mac Accessory Kit	31.00
Prometheus	
Promodem 1200 *(Hayes Compatible)*	279.00
Mac Pack w/Procom M and Cable *(Specify Mac or MacPlus)*	42.00
U.S. Robotics	
Courier 1200 *(Hayes Compatible)*	199.00
Courier 2400 *(Hayes Compatible)*	419.00

Blank Media

Single Sided 3½" Diskettes	
BASF 3½" SS/DD Disks *(box of 5)*	9.00
Bulk *(Sony)* 3½" SS/DD Disks *(10)*	15.00
Sony 3½" SS/DD Disks *(box of 10)*	16.00
Centech 3½" SS/DD Color Disks *(box of 10)*	18.00
Fuji 3½" SS/DD Disks *(box of 10)*	16.00
Maxell 3½" SS/DD Disks *(box of 10)*	16.00
Verbatim 3½" SS/DD Disks *(box of 10)*	17.00
3M 3½" SS/DD Disks *(box of 10)*	19.00
C.Itoh Color Disks SS/DD *(box of 10)*	21.00
Double Sided 3½" Diskettes	
BASF 3½" DS/DD Disks *(box of 5)*	14.00
Bulk *(Sony)* 3½" DS/DD *(10)*	21.00
Centech 3½" DS/DD Color Disks *(box of 10)*	24.00
Sony 3½" DS/DD Disks *(box of 10)*	24.00
Fuji 3½" DS/DD Disks *(box of 10)*	24.00
Maxell 3½" DS/DD Disks *(box of 10)*	24.00
Verbatim 3½" DS/DD Disks *(box of 10)*	25.00
3M 3½" DS/DD Disks *(box of 10)*	27.00
C.Itoh Color Disks DS/DD *(box of 10)*	29.00

Digitizers

Kette Group	
MacNifty Audio Digitizer w/SoundCap	99.00
Koala Technologies Corp.	
KAT Graphics Tablet	139.00
MacVision *(Digitizer)*	175.00
Magnum	
Natural Sound Cable & Editor	89.00
Sound Effects	26.00
New Image Technology Magic Digitizer	249.00
Summagraphics	
MacTablet 6x9 size	289.00
MacTablet 12x12 size	379.00
ThunderWare	
Thunderscan V3.2	175.00
Power Port *(Required to use Thunderscan on a MacPlus)*	29.00
Power Port to ImageWriter II Cable	19.00

Accessories

A.M. Products	
3½" Head & Computer Cleaning Kit	18.00
Bech-Tech Fanny Mac	79.00
Cambridge Automation Numeric Turbo	109.00
Mac Turbo Touch	89.00
Curtis Manufacturing	
Diamond-Surge Suppressor-SP1	29.00
Emerald-Surge Suppressor-SP2	36.00
Ruby-Surge Suppressor-SPF-2	55.00
Sapphire-Surge Suppressor-SPF-1	47.00
Environmental Software Company	
MacAttire: Available in Navy-Blue, Burgundy, or Silver-Gray.	
External Drive or Keypad Cover	7.00
ImageWriter II Cover	11.00
Wide ImageWriter Cover	13.00
Mac & KeyBoard Cover	15.00
MacPlus & Keyboard Cover	15.00
MacPlus, HD-20, & Keyboard Cover	18.00
LaserWriter Cover	17.00
Ergotron	
MacTilt *(with External Drive Bracket)*	75.00
MacBuffer 512K	369.00
MacBuffer 1024K	569.00
Hayes CH Mach IV Joystick	59.00
Innovative Concepts	
Flip 'n' File/Micro	9.00
Flip 'n' File II/Micro	18.00
Innovative Technology	
The Pocket Pack *(holds 6 disks)*	9.00
The Disk Directory *(holds 32 disks)*	18.00
The Easel *(holds 20 disks)*	12.00
The Library *(Carousel-Holds 80 Disks)*	29.00
I/O Design	
MacPlus Carrying Case	69.00
ImageWriter II Carrying Case	49.00
ImageWriter Wide Carrying Case	49.00
Kalmar Designs	
Teakwood Roll-Top Disk Cases:	
Micro Cabinet *(holds 45 disks)*	15.00
Double Micro Cabinet *(holds 60 disks)*	22.00
Kensington	
System Saver Mac	65.00
Turbo Mouse	89.00
A/B Box *(Specify Mac or MacPlus)*	65.00
Disk Case *(holds 36 Mac disks)*	19.00
Disk Drive Cleaning Kit	20.00
External Disk Drive Cover	8.00
ImageWriter or ImageWriter II Cover	9.00
Macintosh (Plus) Dust Cover	9.00
Mouse Cleaning Kit w/Pocket	17.00
Mouse Pocket	8.00
Mouseway *(Mousepad)*	8.00
Polarizing Filter	34.00
Starter Pack *(includes Tilt/Swivel)*	59.00
Surge Protector	35.00
Tilt/Swivel	22.00
Control Center	65.00
Printer Stand	18.00
Copy Stand	22.00
Kette Group	
MacNifty Stereo Music System MNS-200	75.00
MacNifty Stereo Music System MNS-300 *(Dolby, Bass, Treble)*	99.00
Kraft QuickStick III	49.00
MacMemory, Inc.	
MaxChill *(Internal Piezo-Electric Fan)*	37.00
Moustrak MousePad 7"x9" Size	8.00
MousePad 9"x11" Size	9.00
MPH Computer Products	
MAC-B-COOL	99.00
Ribbons Unlimited	
Available in Black, Blue, Brown, Green, Orange, Purple, Red, Yellow, Silver & Gold	
ImageWriter Ribbon-Black	4.50
ImageWriter Ribbon-Color	5.00
ImageWriter Rainbow Pack *(6 Colors)*	25.00
ImageWriter II-Four Color Ribbon	12.00
Smith & Bellows	
Hand Crafted Mahogany Disk Case: Holds up to 90 Diskettes	27.00
Hand Crafted Basswood Disk Case: Holds up to 90 Diskettes *(Natural or Stain)*	19.00
Systems Control	
MacGard Surge Suppressor	55.00
X-10 (USA) Inc.	
X-10 Powerhouse Computer Interface	65.00
X-10 Wall Switch Module	15.00
X-10 Lamp Module	15.00
X-10 Appliance Module *(Specify 2 or 3 Pin)*	15.00

Positively A Plus!

PROGRAMS PLUS

75 Research Drive
Stratford, Conn. 06497

Telephone Hours: Monday-Friday 9-9
Saturday 10-6

Orders Only TOLL-FREE

1-800-832-3201

©Copyright 1987 Programs Plus, Inc. **Circle 194 on reader service card**

Back to Basics. Thousands sold at $525. Now just $199!

FOR THE BEST SELLING ACCOUNTING SOFTWARE LOOK FOR THE PEACHTREE LABEL

Peachtree Software®

Get Back to Basics™

Peachtree's Back to Basics is the most popular accounting system on the market today. And it's no wonder why.

Back to Basics is simple to install, easy to use, and priced in line with what small businesses can afford.

But don't take our word for it. Software Digest, a leading consumer organization, rated Back to Basics number one in overall usability when compared to products costing as much as $995 and, for the past two years, Back to Basics has won the *A+ Magazine* ***Software of the Year Award*** for Macintosh business accounting systems thanks to the votes of over 20,000 Apple users.

No Experience Required

Back to Basics assumes you're an expert in only one business—your own.

- Installation of Back to Basics is painless — read only seven pages in the manual and *spend 30 minutes* using our screen menus.
- If you need to brush up on your accounting, use our accounting primer and tutorial, written by Harvard Business School Professor, Robert N. Anthony, plus our business section on how to handle everyday accounting dilemmas.

$199

Back to Basics Accounting System became a best seller priced at $525. Now, as a result of reduced expenses, we are able to offer all three modules — General Ledger, Accounts Receivable and Accounts Payable — in a complete set for just $199.

Proven Power

Peachtree has long been the first name in accounting software and the powerful features we've included in Back to Basics prove we understand what you're looking for.

- Complete integration of General Ledger with Accounts Receivable and Accounts Payable.
- Single transaction entries up to $999,999.99 and year-to-date totals up to $21,000,000.
- Journals and reports updated as each transaction is recorded.
- Void transaction facility automatically creates reversing entry.
- *More than 30 reports* can be viewed on screen or printed.

Macintosh Specific

Back to Basics was written specifically for the Apple Macintosh, not simply converted from another computer version. It uses the Macintosh interface (mouse and visual icons) for system operation and groups functions into on-screen "file drawers" for organization and ease of use.

Back to Basics was a featured accounting system in Apple's initial ads for the Macintosh and is backed by Peachtree's outstanding support, labeled by *InfoWorld* as "the finest in the industry". Support is available as you need it, at a nominal charge directly from Peachtree or through our network of local authorized support centers.

Money Back Guarantee

When you purchase Back to Basics directly from Peachtree Software you're protected with a 30-day, money back guarantee (an option even the most expensive accounting products don't offer).

If you're not satisfied, simply return the complete product in saleable condition within 30 days and your purchase price will be promptly refunded. For full details, call the toll-free telephone number below.

Invoicing Coming Soon

Back to Basics Invoicing will soon be available for the Apple Macintosh at an introductory price of $95.

Hardware Specifications

- IBM Personal Computer, PC/XT, PC/AT with two floppy disk drives or one floppy disk drive and a hard disk.
- Apple II+, IIe, IIc, IIgs with 128K and two disk drives or hard disk.
- Apple Macintosh 512K or Plus with two disk drives or hard disk.

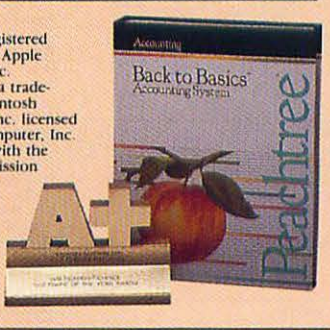
Features That Made Back to Basics A Best Seller

GENERAL LEDGER
- On-line help displays Chart of Accounts.
- MTD and YTD show on income statements.
- Allows automatic Journal entries.
- Check processing and printing capability through Cash Disbursements.
- Optional cost of sales ranges.
- User modifiable Chart of Accounts included.
- Allows up to 3 checking accounts.
- Up to 10 departments with separate income statements.

ACCOUNTS RECEIVABLE
- Calculates receivables on balance forward basis.
- Prints statements and mailing labels.
- Allows automatic posting to General Ledger.
- Accepts partial payments.
- Calculates finance charges.
- Up-to-date customer information can be scrolled for review at any time.
- Customer ID's can be alpha or numeric.
- Verifies customer credit limit.
- Calculates up to 3 sales taxes per entry.

ACCOUNTS PAYABLE
- Up to 10 vendor payment terms.
- Calculates cash discounts.
- Accepts partial payments.
- Automatic posting to General Ledger.
- Prints vendor mailing labels.
- Up-to-date vendor information can be scrolled for review at any time.
- Customer ID's can be alpha or numeric.
- Prints computer checks or processes hand-written checks.
- Invoices automatically or manually selected for payment.

Apple is a registered trademark of Apple Computer, Inc. Macintosh is a trademark of Macintosh Laboratory, Inc. licensed to Apple Computer, Inc. and is used with the express permission of its owner.



To order, or for a dealer near you, call

1-800-247-3224

In Georgia, call 1-404-564-5800

Peachtree Software

4355 Shackleford Road, Dept. MAW-03, Norcross, GA 30093

Circle 553 on reader service card



Getting Started with Spooling

How the Mac prints documents, with a hard look at the promises and pitfalls of spoolers.

by Jim Heid

Merriam-Webster hasn't recognized it, but *spool* has joined radar and scuba in that elite group of acronyms that have lowered their case and evolved into words. Spooling refers to a process designed to reduce the time you spend waiting for the computer while the Mac formats a document for the printed page. With spooling, data en route to a printer is intercepted and stashed on disk or in memory, either of which can accept data faster than a predominantly mechanical printer. As soon as a document is spooled, the computer is yours. The acronym was born when pioneering computer scientists realized that the time they saved by spooling was lost by saying "simultaneous peripheral operations on line."

Actually, spool works even better as a metaphor than as an acronym. Compare the disk or memory where the spooler stores documents temporarily to a spool that holds thread. The documents are wound around the spool until you're ready to print them, at which time the spool is unwound and the documents are sent to the printer, or *despooled*.

The tricky part occurs during the despooling process. A lightning-fast juggling routine called the *interrupt* lets the computer send the document to the printer in bursts while you work, and the Mac appears to do two things at once. (Interrupts also make it possible to move the mouse pointer while printing or accessing the disk, and they allow desk accessories like the Alarm Clock to operate.)

A half-dozen spoolers are available for use with ImageWriters, several have recently debuted for LaserWriters, and many hard disk manufacturers include spoolers with their drives (see "Spoolers and Buffers"). Spoolers can take different forms, but most comprise an application that loads the spooler's code into memory and a desk accessory that lets you control spooling from within an application.

But are spoolers worth using? They shorten the interruption in your work that occurs during printing—but at a price. The technical tricks they perform make them quirky at times, and they don't work with every application. Some background on Mac printing helps explain why.

Two Routes to Hard Copy

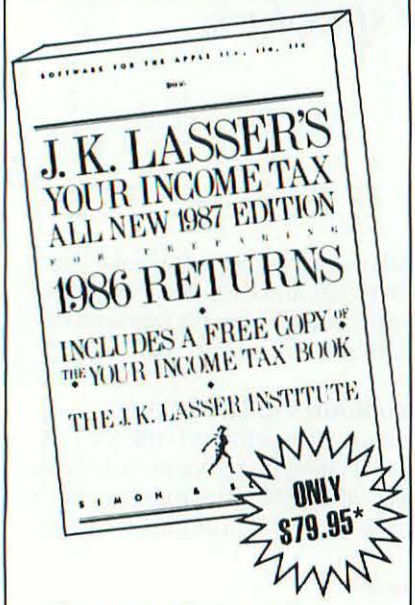
Dealing with printers is the job of a Macintosh system component called the *print manager*. The print manager takes one of two routes for printing on Image-

(continues)



JOHN HERSEY

NOW J.K. LASSER'S TAX EXPERTS ARE AS CLOSE AS YOUR COMPUTER



Here is the 1987 edition of the best-selling tax software package ever. Watch it save you time and money on your 1986 taxes by:

- Preparing your tax returns thoroughly and confidently
- Personalizing your tax returns with a unique, easy-to-use Interview
- Providing extra on-screen help for every Interview question
- Cross-referencing every line of your tax forms to your FREE copy of *Your Income Tax*, America's favorite tax guide for over 50 years
- Allowing you to complete all your calculations at the touch of a single key
- Helping you profit—not lose—from the 1986 tax reform laws

Wherever software is sold, or

Call **1-800-624-0023**

(in N.J. 1-800-624-0024) to order. But do it today. April 15th will be here before you know it.

*IBM PC, PCjr, PC/XT, PC/AT and Apple versions $69.95; Commodore 64/128 versions $49.95; Macintosh version $79.95 (sugg. retail)

Simon&SchusterSoftware

SIMON & SCHUSTER, INC. A GULF+WESTERN COMPANY

Spoolers and Buffers

	Manufacturer	Phone Number	Price
ImageWriter			
MacServe	Infosphere	503/226-3620	$250
Printworks for the Mac	Softstyle	808/396-6368 800/367-5600	$75
MacMate	SMB Development Assn.	Unlisted	$49.95
MacSpool	Mainstay	818/991-6540	$49.95
MaxRAM/MaxPrint	MacMemory	800/862-2636 408/922-0140	$49.95
QuickSet	EnterSet	800/621-0851, ext. 305 415/543-7644	$49
TopDesk	Cortland Computers	415/845-1142	$59.95
MAX	DataSpace	800/387-0492 416/474-0113	$449
MacBuffer	Ergotron	800/328-9839	
256K		612/854-9116	$299.95
512K			$449.95
1MB			$699.95
LaserWriter			
LaserServe	Infosphere	503/226-3620	$125
TOPS for the Macintosh	Centram Systems West	800/222-8677 415/644-8244	$149
LaserServer	DataSpace	800/387-0492 416/474-0113	$2295
MacBuffer LW	Ergotron	800/328-9839	
2MB		612/854-9116	$2000*
4MB			$2600*
HyperDrive Line	General Computer	617/492-5500	
HyperDrive 10			$1399
HyperDrive 20			$1699
HyperDrive 2000			$2999
HyperDrive FX/20			$1199

**Price is approximate.*

Writers and similar printers. Which route the print manager selects depends on the print quality option you choose in the Print dialog box. Choosing Draft causes the Mac to send text (no graphics) directly to the printer, which prints the text in a built-in font instead of the font that appears on screen. With draft printing, words are positioned to show where they'll appear in Faster or Best quality; that's why the space between them is often so huge.

Choosing Faster or Best quality, however, invokes a complicated process in which a file called a *picture file* is created on disk. The picture file contains a series of commands for QuickDraw, the same built-in graphics routines that draw fonts and pictures on screen. After the appearance of every page in a document has been inscribed in the picture file, another part of the Mac's print manager opens the picture file, interprets its commands, and translates them into codes that control the printer. The current start-up disk holds the picture file; that's why you can't print a document in Faster or Best quality when the start-up disk is locked.

Some applications, including *MacWrite,* take a different approach to creating print files. Instead of describing a document all at once, they describe it one page at a time, alternating between creating a page's picture file and interpreting it and sending commands to the printer.

While each spooler has its own behind-the-scenes operating style, all perform their jobs by horning in on the printing process I just described. A spooler erects a few detour signs in the Mac's

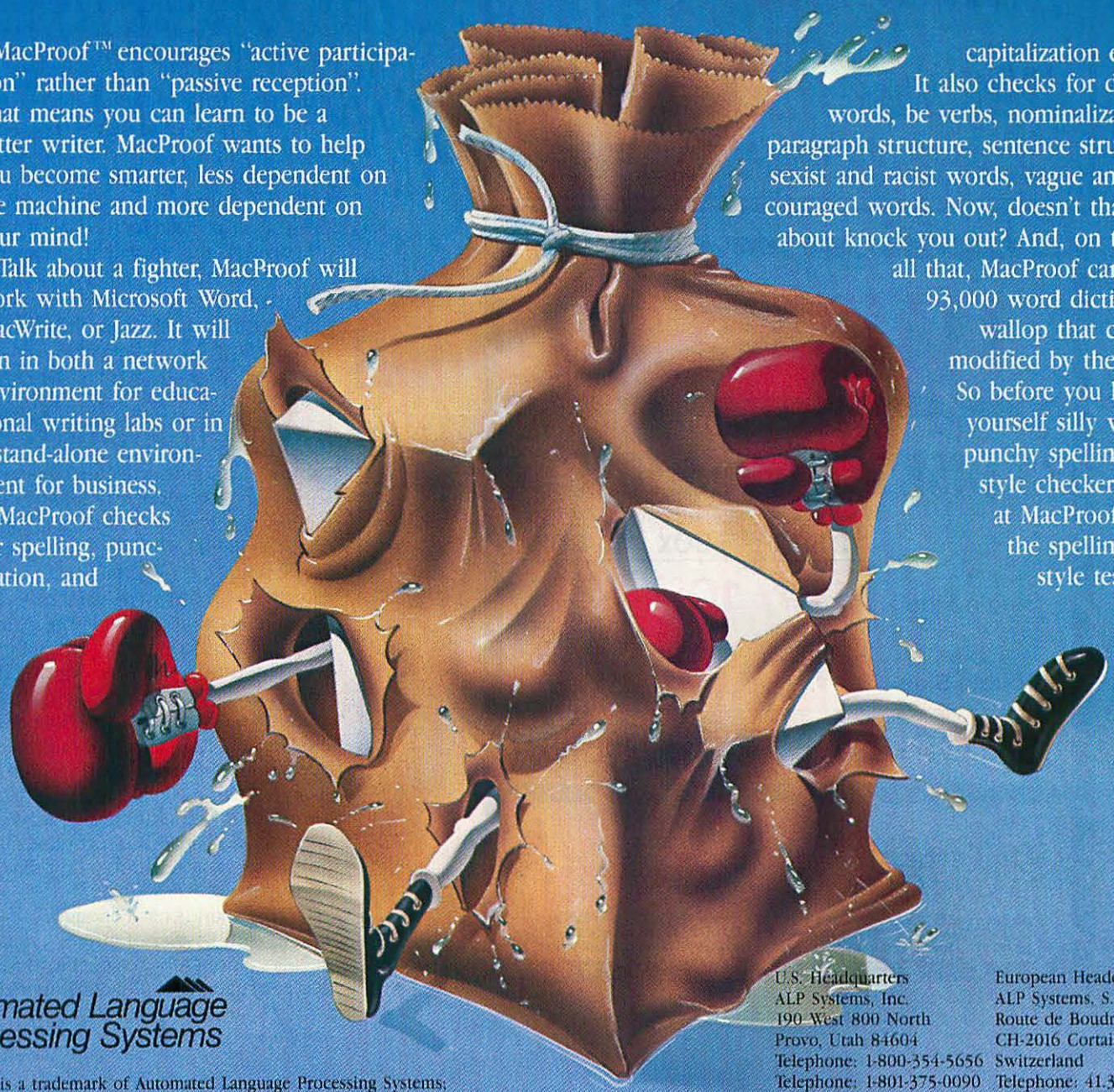
(continues)

Don't Get Hooked Up With A Box That Can't Box Its Way Out Of A Wet Paper Bag!

MacProof™ encourages "active participation" rather than "passive reception". That means you can learn to be a better writer. MacProof wants to help you become smarter, less dependent on the machine and more dependent on your mind!

Talk about a fighter, MacProof will work with Microsoft Word, MacWrite, or Jazz. It will run in both a network environment for educational writing labs or in a stand-alone environment for business.

MacProof checks for spelling, punctuation, and capitalization errors. It also checks for double words, be verbs, nominalizations, paragraph structure, sentence structure, sexist and racist words, vague and discouraged words. Now, doesn't that just about knock you out? And, on top of all that, MacProof carries a 93,000 word dictionary wallop that can be modified by the user! So before you knock yourself silly with a punchy spelling and style checker, look at MacProof first, the spelling and style teacher!



Automated Language Processing Systems

MacProof is a trademark of Automated Language Processing Systems; MacWrite is a trademark of Apple Computers; Microsoft is a registered trademark of Microsoft Corporation.

Circle 610 on reader service card

U.S. Headquarters
ALP Systems, Inc.
190 West 800 North
Provo, Utah 84604
Telephone: 1-800-354-5656
Telephone: 1-801-375-0090
Telex: 453-195 ALPS PRVO
Telefax: 1-801-375-7217

European Headquarters
ALP Systems, S.A.
Route de Boudry 14
CH-2016 Cortaillod/Neuchâtel
Switzerland
Telephone: 41.38.44.21.11
Telex: 952-751
Telefax: 41.38.42.11.85

SONY®

Disks Packaged (10) per Box.

	2 Box	5 Box	10 Box
3½" Single Side	11.75	11.20	10.90
3½" Double Side	17.75	17.25	16.75

Same Disk But, No Frilly Box.

MAC-PAC-50's Packaged in Fifties

	50	100	400+
3½" Single Side...	1.12	1.07	1.02
3½" Double Side...	1.52	1.45	1.41

Old Reliable the Diskette Connection™

Delaware 1-800-451-1849
P.O. BOX 10247 WILMINGTON, DE. 19850
Oklahoma 1-800-654-4058
P.O. BOX 1674 BETHANY, OK. 73008
Nevada 1-800-621-6221
P.O. BOX 1213 BOULDER CITY, NV. 89005

Minimun order $25.00 · Visa, MasterCard accepted · C.O.D orders add $3.00 · Surface Shipping: on 3.5 or 5.25" add $3.00 per 100 disks. 8"add $4.00 per 100 disks. UPS delivery only. U.S. mail for APO, FPO, AK, HI or PR add an addional 5% for PAL. Prices subject to change without notice!

maxell®

3½" DISKS, Packed 10/Box

	2 BOX	5 BOX	10 BOX
3½" Single Side...	11.00	10.80	10.50
3½" Double Side...	17.20	16.95	16.60

3" (CF-2)...$34.00 per box

Old Reliable the Diskette Connection™

Delaware 1-800-451-1849
P.O. BOX 10247 WILMINGTON, DE. 19850
Oklahoma 1-800-654-4058
P.O. BOX 1674 BETHANY, OK. 73008
Nevada 1-800-621-6221
P.O. BOX 1213 BOULDER CITY, NV. 89005

Minimun order $25.00 · Visa, MasterCard accepted · C.O.D orders add $3.00 · Surface Shipping: on 3.5 or 5.25" add $3.00 per 100 disks. 8"add $4.00 per 100 disks. UPS delivery only. U.S. mail for APO, FPO, AK, HI or PR add an addional 5% for PAL. Prices subject to change without notice!

Circle 562 on reader service card

memory, rerouting data headed for the print manager's routines and waving it through its own print routines. Those routines use interrupts to send a document's picture file to the printer in bursts.

The Laser Difference

Printing to LaserWriters or other PostScript printers is similar to printing to ImageWriters, but there are enough differences to make PostScript spooling much more complex. Normally, when you OK the print dialog box for a LaserWriter-destined document, the Mac displays its "Looking for LaserWriter" message and surveys the AppleTalk network in search of a printer whose name matches the name you last selected in the Chooser desk accessory.

Once it finds the printer, the Mac checks its status to determine whether it's available or in use by another network member. If it's available, the Mac determines whether the printer has been initialized with the LaserPrep System file, which contains code that allows the printer to use the PostScript commands sent by the LaserWriter driver. If the printer is uninitialized—perhaps it's just been switched on—the Mac transmits the LaserPrep file and displays the "initializing printer" message. Finally, the Mac and the LaserWriter begin a dialog that involves translating the QuickDraw commands in the picture file into the PostScript language commands the printer needs. During this dialog, the printer interrupts the Mac to signal error conditions, such as an empty paper tray or the dreaded paper jam. Other two-way communications occur during printing, such as the LaserWriter telling the Mac that it needs a certain downloadable font.

The key word is communication. A PostScript printer isn't just a mutant photocopier with design delusions. It's a computer in its own right, and to print a document the PostScript printer must be able to communicate in real time—during the print job—with the computer it's attached to. For a LaserWriter spooler to work, it must fool the Mac into believing that this dialog is occurring. Then, during despooling, the spooler itself must talk with the printer, determining whether it's available, whether it's initialized, whether it contains the proper fonts, and whether any error conditions exist.

That sounds hard enough, but it gets worse. With PostScript printers, many aspects of a print job are specific to a particular printer. Downloadable fonts from

(continues)

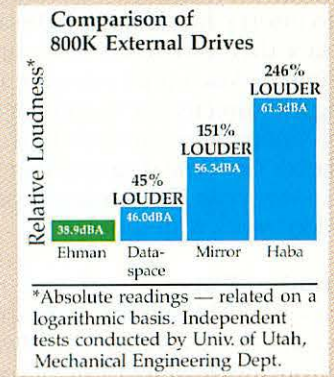
Power and Elegance



Finally, disk drives that offer the advanced power and elegant design at the price you've been waiting for.

800K Disk Drive

- *Totally Silent*
- LED (so you know the silent drive is running!)



*Absolute readings — related on a logarithmic basis. Independent tests conducted by Univ. of Utah, Mechanical Engineering Dept.

- Manual eject button
- Compatible with old and new Mac ROMs — use on standard 512K
- Compact case matches Mac aesthetics
- *12 month warranty* (four times Apples!)

20MB and 40MB SCSI Hard Disk Drives

- Smallest drives available — completely portable
- Head-locking safety feature, rated 60 Gs
- Mean failure time of 25000 hrs.
- SCSI port available for 512K Macs
- *12 month warranty*



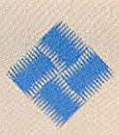


Ehman 800 *double-sided external drive and* Ehman 20HD *20MB SCSI hard drive. State-of-the-art design and performance. Completely silent, completely portable. With 12 month warranty.*

Ehman Engineering — The Dependable People

Like hundreds of companies have for years, you can depend on Ehman Engineering for the finest Macintosh peripherals at unbeatable prices. (Ask about our top-quality memory upgrades and 512K SCSI port for the Mac.) We take pride in our work, which is why all Ehman products are elegantly designed inside and out, and come with a 12-month warranty. And we take care of our customers, which is why you'll always find a friendly, knowledgeable person on the other end of our 800 number.

Call us today for details on the complete Ehman product line. We're looking forward to talking with you.



EHMAN ENGINEERING, INC.

115 Apache Drive, Evanston, WY 82930

(800)257-1666

Macintosh and Macintosh Plus are trademarks licensed to Apple Computer, Inc.
Ehman 800, Ehman 20HD and Ehman 40HD are trademarks of Ehman Engineering, Inc.

Circle 602 on reader service card

COPY II® MAC

New! Version 6: Full H.F.S. Support

BACKS UP PROTECTED SOFTWARE.

Copy II Mac does more than just sector copy. Its bit copy program has the built-in power and flexibility to handle most protection schemes automatically and supports single and double-sided drives. (We update Copy II Mac as often as needed to handle new protections; you as a registered owner may update at any time for $15 plus $3 s/h.)

RUNS PROTECTED SOFTWARE FROM YOUR HARD DISK.

Copy II Mac makes using your hard disk (including the Apple hard disk-20) as convenient as it should be. No longer will you have to use the 3½" disk with some of the most popular business software. Call for current list.

GIVE YOUR MAC MORE MUSCLE.

Copy II Mac can even repair some damaged disks and recover accidentally deleted files.

System Requirements: 512 Macintosh or Macintosh Plus, 1 drive. (2 drives, all available memory and hard disks fully supported.)

Call 503/244-5782, M–F, 8–5 (West Coast time) with your VISA in hand. Or send a check for $39.95 U.S. plus $3 s/h, $8 overseas.

$39.95

Central Point Software

INCORPORATED
9700 S.W. Capitol Hwy., #100
Portland, OR 97219

Winner of A+ Readers' Choice Awards!

Backup utilities also available for the IBM, Apple II, Atari ST, and Commodore 64/128.

Now available!!!

800K drives for Macintosh: $195.00 (plus $10 shipping/handling). Plugs directly into Mac & Mac Plus!

Circle 607 on reader service card

CALENDARMAKER™

Now with color printing for all elements.

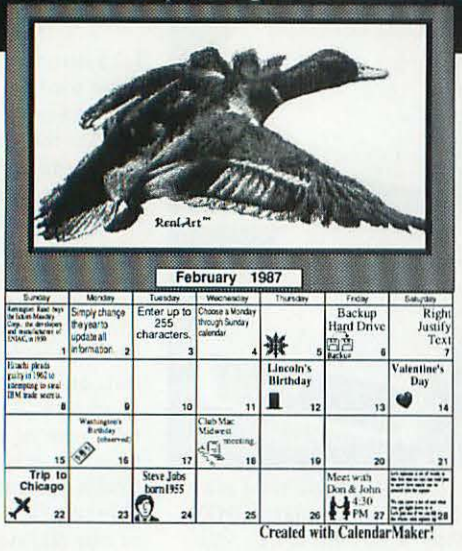
version 2.2 by Donald Brown

Create wall calendars or export to page layout and other programs.
Useful for agendas, meetings, schedules & appointments.
Perpetually track birthdays, holidays and anniversaries.
Add icons to highlight dates. Use our icons or design your own.

Three calendar types.

Tall or wide.

Fully adjustable page size (as small as index card on up).
Up to 255 characters per date.



Created with CalendarMaker!

Individual font selection of sizes and styles for the month name, dates, weekday names and text.. Left, center or justify text for each day.
Read files directly from Calendar™, SideKick® MORE™ or BatteryPak™

Print to disk for use with draw, paint & page layout programs.

FREE BONUS PROGRAM:
Icon Mover lets you design, transfer and save CalendarMaker icons. You can also retrieve icons from resource (program) files and paint type files.

See your local dealer or order from:

CE Software
801 - 73rd Street
Des Moines, IA 50312
(515) 224-1995
MasterCard & Visa accepted.

For Macintosh™ 512, 512E, Plus, XL

Not Copy Protected
LaserWriter™ Compatible
Hard Disk Compatible

ONLY **$30**

Circle 604 on reader service card

Adobe Systems, for example, must be initialized for a specific printer. And LaserWriters contain only a few font families, while LaserWriter Pluses contain nearly a dozen. The spooler can't assume that all the fonts in a document will actually be on the printer. A LaserWriter spooler must spool for a specific printer: the one you last selected using the Chooser.

The Bad News

If you've ever taken a detour, you know how easy it is to get lost. Any software that modifies the Mac's normal routine can cause problems. Spooling software occasionally sends extra "garbage" characters to the printer during despooling, especially if you're using the Mac for some other task–which is likely, since that's why you use a spooler. And because a spooler imposes another task on the Mac's already hard-working microprocessor, during despooling you'll notice a performance slowdown and, in some cases, erratic mouse-pointer movement.

That isn't all. Many spoolers stop despooling when you access the disk to open an application or save a document, so while you may get back to work faster, you'll wait longer to see your final copy. Some spoolers, such as BackPrint, part of Cortland Computer's *TopDesk,* don't let you quit an application while printing a document created by it–another quirk that defeats the purpose of a spooler. Then there's the problem of printing on single sheets. A spooler's very nature requires it to spool an entire document at once, so you can't just click the Hand Feed or Manual Feed button and insert pages one at a time. If your spooler supports manual feed operation at all, you usually have to go through a convoluted routine of clicking the Automatic Feed button, then watching for messages from the spooler telling you when to insert paper. Finally, some applications blaze their own trail to the printer, bypassing the Mac's print manager and sending text directly out the printer port. Such programs, which include ProVue Development's *OverVue* data manager and Hayes's *Smartcom II* communications program, don't work with spoolers.

Another Way

A more reliable alternative to spooling software is a *printer buffer,* a hardware add-on containing memory and its own microprocessor and ROM-based software (see *Reviews, Macworld,* November 1986).

(continues)

How To Make Your Maccing Faster, Easier, and a Lot More Fun!



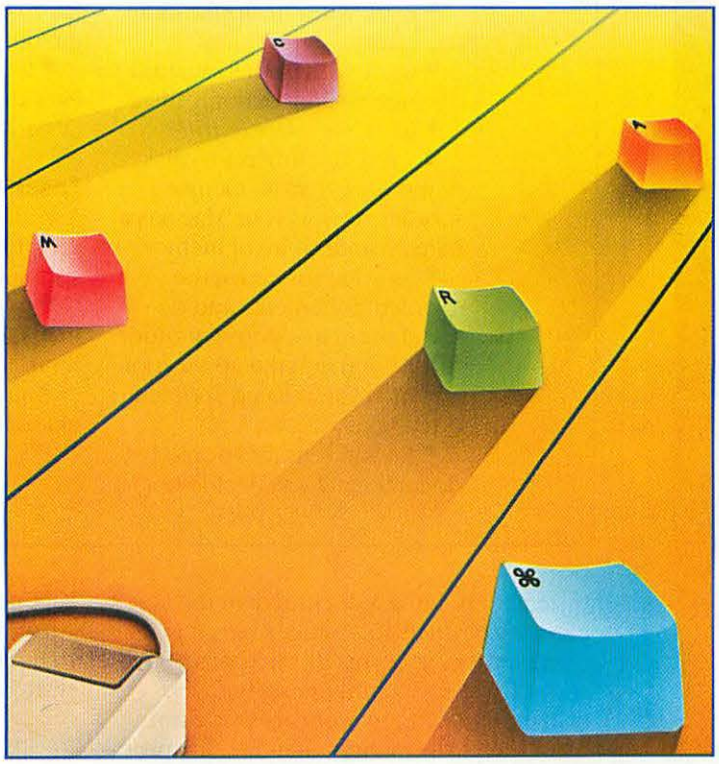
Tempo macros speed your work or play on the Macintosh.

Record any series of Macintosh commands or keystrokes and Tempo will play them back, at top speed, every time you need them. With a single key code, you can execute a macro that replays an unlimited number of commands.



Add intelligence to your Macintosh software

If a macro needs to be performed 27 times in a row or every 15 minutes, Tempo will do that. If it depends on whether a number starts with a "$" or if a name is greater than "Jones," Tempo will read it and decide which way to branch. Tempo can even determine if it needs to *branch to another program.* Tempo will close the program you're in, open the other, and continue replaying your commands. Automatically. Exactly as you require.

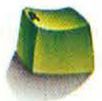


Intelligent macros for the Macintosh.



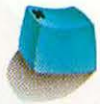
Edit your macros for changes or corrections

You may edit Tempo macros the same way you create them – click to edit, click to change, click to save. Tempo has no complex programming language, simply step-by-step menu commands and dialog boxes.



What you can do with Tempo

- Reduce complex commands to a single keystroke.
- Automate moving information from one program to another.
- Have Tempo wait until the time you specify, then perform multiple tasks on your Macintosh – unattended.
- Guide new users through programs, prompting them with dialog boxes along the way.
- Distribute time-saving macros to other members of your company.
- Customize programs to work the way you need them to.
- Simplify, automate, customize, modify, design, and create in a million different ways!



Other Tempo features...

- Pause during a macro replay to enter text or make a selection.
- Record macros up to the limits of your disk space – hard drive or floppy.
- Assign up to 450 keyboard commands in each application.
- Use Command key codes or Option key codes.
- Replay in slow motion, in real time, or at high speed.
- Connect macros together, nested, branched or sequentially.
- Repeat the macro *if* or *until* it sees the specified text, or *for* a required number of times.
- Tempo works with nearly every Macintosh program.
- For the 512K or larger Macintosh and Macintosh XL.
- Works with all hard disk drives.
- Tempo is not copy-protected, so you can easily install it on your hard drive.
- If you're not absolutely happy with what Tempo can do for you and your Mac, return it within 90 days for a complete refund.

We guarantee your satisfaction.

For $99, you get more macro power than a micro has ever had before.

Call 1-800-367-6771 right now, today!

Call us for the dealer nearest you, or you can order directly from us.

Tempo™

Affinity Microsystems Ltd.
1050 Walnut Street, Suite 425
Boulder, Colorado 80302

Macintosh is a trademark licensed to Apple Computer, Inc. Tempo and Affinity are trademarks of Affinity Microsystems, Ltd.

Circle 274 on reader service card



The Macintizer is *better* than a mouse: its stylus gives you precise control for drawing, you can trace original artwork, and it won't clog or skip.

PLUS, the Macintizer plugs directly into the mouse port for 100% compatibility with all your programs—no software modifications required.

Turn your Macintosh into the graphics machine it was meant to be—with the Macintizer.

Contact your dealer or GTCO Corporation for more details.
Ask about our new low price.

GTCO Corporation
1055 First Street, Rockville, MD 20850
Phone: (301) 279-9550 Telex: 89-8471

Circle 323 on reader service card

Spooler Checklist

This list of shopper's considerations will help you assess your spooling needs and choose the product that's right for you.

ImageWriter Spoolers
Does the spooler in question
- work with the applications you use?
- work with both formatted documents and text-only files?
- work with *MacPaint?*
- spool documents to disk or memory? (Avoid memory spoolers unless your Mac has a megabyte or more of memory.)
- let you reorganize the spooled documents and despool them in a different order?
- let you quit the application in which you created spooled documents?
- let you remove spooled documents if you decide not to print them?
- support manual-feed printing?
- provide a status window showing which documents remain to be despooled?
- let you defer printing until later, or must it immediately begin despooling a document?
- work with the Macintosh Plus and the Hierarchical File System?

LaserWriter Spoolers
Ask all of the above questions, then find out if the laser spooler will
- work with *PageMaker.*
- support downloadable fonts.
- support networking products such as *MacServe* and *TOPS.*

Instead of holding a document in the Mac's memory or on disk, a buffer holds it in its own memory and uses its microprocessor and software to communicate with the printer. The extra microprocessor eliminates the performance and reliability problems that software spoolers introduce.

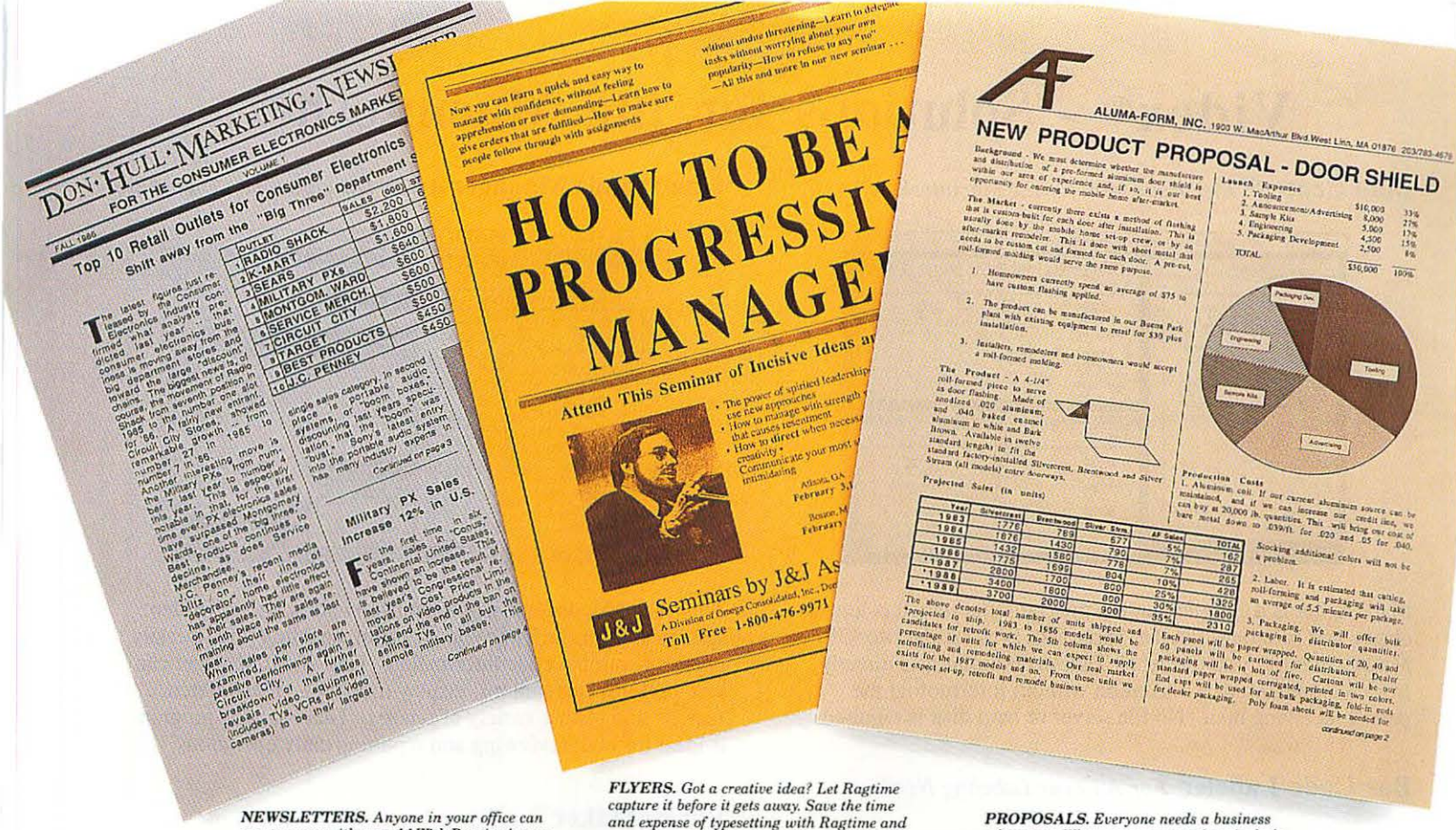
Printer buffers are, however, susceptible to the same manual-feed foibles and incompatibility problems as software spoolers. And because of a laser printer's extra requirements, buffers compatible with the LaserWriter have been slow in coming, although at this writing several manufacturers, including DataSpace and Ergotron, are polishing LaserWriter buffers (see "Looking for LaserWriter Spoolers," *Macworld News,* November 1986).

The biggest problem with hardware buffers is cost. Software spoolers for ImageWriters cost about $50 and up; laser printer spoolers go for $100 to $200. Hardware buffers start at $300 (for Ergotron's MacBuffer with 256K) and climb to more than $2000 (for Dataspace's LaserServer). Dataspace's MAX ImageWriter buffer lets you share an ImageWriter over an AppleTalk network, but you could buy another ImageWriter for the $449 it costs. You have to be prolific and impatient to make a hardware buffer worthwhile.

Who Needs Them?

Reliability and compatibility with your applications are vital considerations, but in the end, base your decision about whether to use a spooler or buffer on the way you work. If you frequently endure interminable printing sessions—running off final drafts of text documents or *MacPaint* drawings, or printing mailing labels for a sweepstakes offer—a spooler warrants consideration. You'll find some shopper's considerations in "Spooler Checklist."

On the other hand, if you spend most of your time *creating* documents and only a short time printing them, a spooler or buffer is probably more trouble or more expense than it's worth. In fact, if you work this way, you may find your productivity—not to mention your state of mind—improved by pausing to look out a window for a minute or two while a document prints. It beats plowing into another task while a printer whines next to you. □



NEWSLETTERS. *Anyone in your office can create pages with* ***punch!*** *With Ragtime's ease of use and flexible capabilities, newsletters like this are a snap.*

FLYERS. *Got a creative idea? Let Ragtime capture it before it gets away. Save the time and expense of typesetting with Ragtime and your own initiative.*

PROPOSALS. *Everyone needs a business advantage. When your presentations include spreadsheets and graphics to make your points, you'll be noticed!*

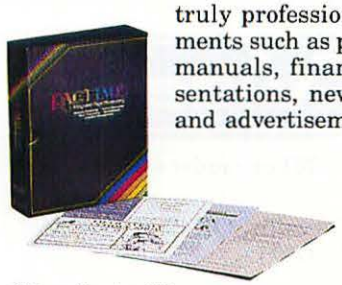
Word Processing is Obsolete!

Presenting RAGTIME™ Page Processing

Page Processing; A New Breed

Word Processing has served you well for over two decades, and has now been replaced by a new, superior application—Page Processing. It's called Page Processing because it contains all the necessary tools for creating exciting pages and professional documents. Gone are the limitations of words without pictures and text without numbers.

Ragtime, the premier Page Processor for the Macintosh computer, is the first to combine the functions of **word processing, spreadsheets, page layout** (also known as desktop publishing), **business forms generation** and **graphics management** all in one complete package. Effective businessmen need these combined functions to create truly professional documents such as proposals, manuals, financial presentations, newsletters, and advertisements.



© Orange Micro, Inc., 1986

The Page Processing Advantage

If you are using separate software packages for word processing, spreadsheet and desktop publishing, you are not achieving your full potential. A new standard in top-quality business documents has been established with the integrated power of *Ragtime* Page Processing.

As an example, consider a typical business proposal, like that pictured above right. Only with the power of *Ragtime* Page Processing can you create the entire page layout (including columns, hairlines, headers, and the like) and simultaneously word process *all* your required text. Next, you can build in a persuasive spreadsheet with all the facts and figures (a requirement in any business proposal), all without leaving the application. Then bring in the graph that illustrates your data (a picture is worth a thousand words processed). *Voilà,* you and *Ragtime* have produced your most professional proposal ever. All this at a fraction of your previous efforts and costs. This is the Page Processing advantage.

Commitment to Innovation and Excellence

Orange Micro has spent over six years providing innovation to Apple users all over the world. To date, we have sold over 500,000 Apple enhancement products, and gained the support and respect of the industry.

Special Opportunity to Try Ragtime

We would like to give you an opportunity to experience the power of *Ragtime* Page Processing on your own Macintosh, at your convenience. Complete the coupon below and discover Page Processing for yourself.

FILL OUT AND MAIL TODAY!

Send a check or money order for $10 with this completed form and receive:

- Ragtime Evaluation Disk
- Sample Documentation
- $10 Manufacturer's Rebate coupon redeemable with Ragtime purchase
- **Free** Mouse pad ($10.00 retail value)

Name _____

Address _____

City _____ State _____ Zip _____

Telephone (____) _____

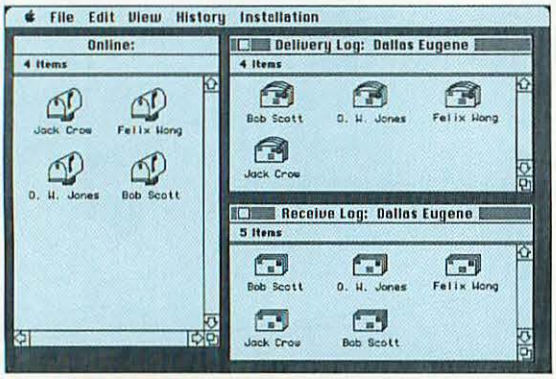
Orange Micro® Inc.

1400 N. Lakeview Ave., Anaheim, CA 92807
(714) 779-2772 Telex: 5101001014 ORANGE MICRO

Circle 575 on reader service card

Videx® - Solutions for the Macintosh™...

Mail Center® *Electronic Mail for the Macintosh Office.*



Mail Center is a communication program that transfers letters, charts, and programs via the AppleTalk Personal Network™. Mail Center lets you use AppleTalk to communicate directly from workstation to workstation without interrupting the person receiving mail. No file server or hard disk is required.

Bar Code Labeler *For All Your Labeling Needs.*

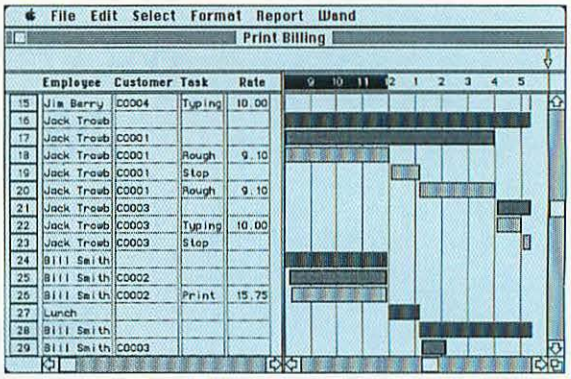


Bar Code Labeler allows you to design custom labels. All of the Macintosh font and type styles can be used to print mailing labels, bar code labels, or virtually any other type of label. Bar Code Labeler uses information from any program that saves information in a text format such as OverVue, Omnis 3, and MacWrite. Bar Code Labeler will print on label stock using either the LaserWriter or ImageWriter printers.

TimeWand® *A Portable, Time-Stamped, Bar Code Reader.*

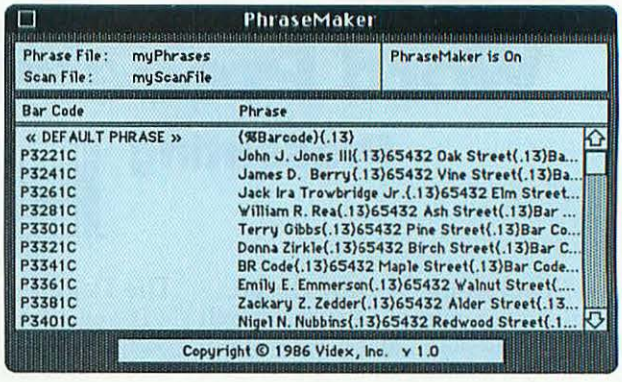
The TimeWand is an intelligent yet inexpensive bar code reading system. With its built-in micro-processor and up to 16K of memory, the TimeWand can be programmed to read different types of bar codes. Different program options can be selected, such as requiring the bar codes to be scanned in a predetermined order. The TimeWand's recharging/downloading station uses a serial connector to communicate with a variety of host computers. Since communication is keyless, the scan information is sent quickly and error free. Versatility is the hallmark of the TimeWand system.

TimeWand® Manager *A New Dimension in a Data Base.*



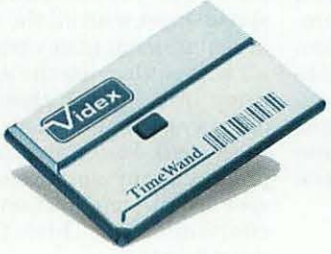
TimeWand Manager is a powerful software program written specifically for the TimeWand system, enabling you to easily organize your bar code information. TimeWand Manager can sort, perform calculations, display timelines, cross-reference, search, and print a variety of reports. This valuable program is ideal for both reviewing and reporting daily operations.

PhraseMaker™ *A Powerful New Software Tool.*



PhraseMaker is a unique new program that allows the TimeWand to be used with virtually any Macintosh program. Written as a desk accessory, PhraseMaker automatically cross-references bar code data received from the TimeWand with a list of stored information. Similar to a macro, PhraseMaker can enter text, menu commands, cursor movements, and bar code data directly into a program without typing.

Mail Center (Twin Pack) $299, (Six Pack) $499;
Bar Code Labeler $89; **TimeWand** (2K) $198;
TimeWand Manager $489;
PhraseMaker $299.



Videx®

Circle 383 on reader service card

Videx, Mail Center, and TimeWand are registered trademarks and PhraseMaker and TimeWand Manager are trademarks of Videx, Inc. Macintosh and AppleTalk Personal Network are trademarks of Apple Computer, Inc.

1105 N.E. Circle Blvd., Corvallis, OR 97330-4285
503-758-0521

See Us at ID Expo, Booth #311, March 25-27 Long Beach Convention Center Long Beach, CA

Insights on Microsoft Word

Tips new and old for versions 1.00 and 1.05, and a look at alternatives in 3.0

Charles Seiter and Daniel Ben-Horin

Undeniably, *Microsoft Word* belongs on the list of the Macintosh's Greatest Hits. It has consistently ranked among the three or four best-selling programs since its introduction. This sales feat is all the more remarkable since virtually every Mac owner was originally equipped with a copy of *MacWrite,* which is certainly acceptable for light-duty word processing.

Word features more flexibility and better large-document handling than *MacWrite,* and its sales have perhaps benefited from lack of competition. It's hard to imagine any developer in the overheated little world of word processors for the IBM PC having the luxury of waiting *two years* between major revisions.

The good news is that Microsoft has finally answered most user requests (notably speed improvements) in *Word* version 3.0. This update doesn't merely fix bugs--there are enough new features to qualify *Word* 3.0 as a modest desktop-publishing system rather than a bells-and-whistles word processor. The bad news is that if you're still using older hardware, you will ultimately pay somewhat more than the $99 you send to Microsoft for the upgrade. If you don't have an 800K drive, *Word* 3.0 leaves you approximately enough space to do a few envelopes. Thus, if you have two 400K drives and are reluctant to pick apart Microsoft's disk using *ResEdit,* skill, and grim determination, please note that the upgrade to 3.0 implies a disk-drive upgrade as well.

For this reason we present a collection of tips for the early and current versions of *Word.* We've compiled some ingenious methods Mac users have devised in the last two years for fabricating Volkswagen versions of the Ferrari features that Microsoft finally implemented in 3.0.



JEFFERS NEWBERRY

Delete (Expletive)

Word processing depends on deletion; manual typewriters are passé because they're stuck forever in insert-only mode. The standard method of deleting *Word* text is, of course, selecting the text by dragging with the mouse and deleting the selection with the Backspace key. This has often left users cursing at the relative awkwardness of small changes. Here are two of the most popular tips for speeding up deletion in 1.00 and 1.05:

- To delete previous word, press Option-Backspace;
- To select previous word, press Shift-Backspace.

Both these keyboard tricks also work in continuous mode. Keeping the keys depressed, you merrily delete or select at high (but controllable) speed.

In 3.0, these no longer work. Microsoft offers these delete commands instead:

- To delete previous word, press ⌘-Option-Backspace;
- To delete next word, press ⌘-Option-G;
- To delete without saving in the Clipboard, select and press Backspace;
- To delete and save in the Clipboard, select and choose Cut or ⌘-X.

Generally, for users with two hands (three are required for truly efficient mouse-plus-keyboard operation), learning keyboard cursor commands is the easiest route to faster typing. See *Get Info, Macworld,* February 1985, for a listing, or try this: press ⌘-? for help, click in the blank window, and make yourself a screen copy of the commands that appear (press ⌘-Shift-3). Print the screen and keep it near your Mac for reference.

Run, Don't Walk

Scrolling through *Word* documents with the mouse is worse than a drag. Puns aside, neither clicking in the right-hand scroll bar nor direct dragging in the document are satisfactorily speedy for multipage documents. Here are some *Word*

(continues)

Macinware Plus™ - $99.95
for
Mac Plus™ System
w/wo HD20™

MacLuggage

Imageware II™ $89.95
for
Imagewriter II™

Made in the U.S.A.
of
Cordura™ Nylon



Call 1-800-241-2122

I/O Design, Inc. • P.O. Box 156 • Exton, PA 19341

All Trademarks Acknowledged

Circle 530 on reader service card



Order Now!

$79.95 800-521-1027
In MA call 617-868-7440

Not copy protected.
60 day, money-back guarantee.

It's Here!

Coral Software introduces Object Logo

A programming language like none before it.

Object Logo is a new programming language developed specifically for the Macintosh. Object Logo incorporates the symbolic processing power of LISP, full object-oriented programming capabilities and the most advanced math package ever put on a microcomputer in a proven, easy to learn educational programming environment. Object Logo — it's a rare blend of simplicity and sophistication.

The Object Logo programming environment features an editor with multiple windows, a debugger, and a hidden native-code compiler, so you get the advantages of both a compiler and an interpreter, rolled into one. Object Logo also improves on the graphics capabilities that made Logo famous with multiple graphics windows and multiple turtles, each implemented as customizable Object Logo objects, and with access to more than 100 Quickdraw commands. Sounds overwhelming? The Object Logo manual is written by experienced educators whose examples and comments will guide you every step of the way.

"High-level" programming with objects puts the full power of the Macintosh at your command. Yet with Object Logo, it's easy. Object Logo is already being used by the Apple Vivarium Project, by faculty and graduate students at MIT, and by prestigious Artificial Intelligence Labs such as Bolt Beranek and Newman, Inc. With Object Logo, you can still teach your students geometry, but you (and they) can also explore the most advanced concepts in computer science — like artificial intelligence and object-oriented programming — with ease!

Coral SOFTWARE

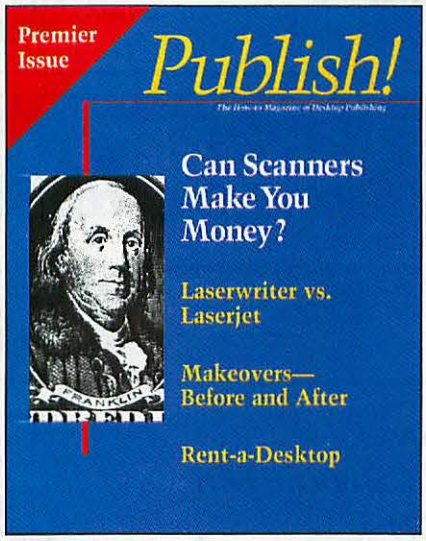
CODs and purchase orders WILL NOT be accepted by Coral Software. Price is suggested retail price and is subject to change without notice. Minimum system requirements for Object Logo: 512K Macintosh 800K disk drive or any external disk drive. Object Logo is a trademark of Coral Software Corp. Macintosh is a trademark licensed to Apple Computer, Inc.

Circle 611 on reader service card

From the Publishers of PC World and Macworld

Publish!

The How-to Magazine of Desktop Publishing



If you use a Macintosh or PC system to publish annual reports, newsletters, books, ads, brochures, or any other printed material, then you need Publish!, the How-to Magazine of Desktop Publishing.

Act Now for Charter Subscriber Savings—40% OFF!

Publish! is written, edited, and produced on personal computer–based systems. Because we're on the cutting edge of this new technology, you can depend on us for the expert information you need to establish your own personal publishing operation.

What You Will Find in Publish!

- Hundreds of new product listings
- In-depth reviews of hardware and software
- Cost-saving ways to prepare pages
- Shortcuts to help you get the most from available products
- Tips on the fundamentals of graphic design and publishing basics

All this and more, each month in Publish!

Fast Action Saves You Money!

For a limited time, Charter Subscriptions are available —just $23.95 for a full year (12 monthly issues). That's nearly 40% OFF the basic subscription price.

Take advantage of this limited-time Charter Subscription offer now. Mail the attached postpaid card or the coupon below. For immediate service, call TOLL-FREE (800) 222-2990.

Charter Subscription Savings

YES! *Send me one year (12 monthly issues) of Publish! at the Charter Subscription rate of $23.95. That's nearly 40% OFF the basic subscription rate.*

☐ *Payment enclosed* ☐ *Bill me later*
Charge my ☐ *Visa* ☐ *MasterCard*

Card No. (Please print)

Expiration date

Signature

Name

Company

Street

City

State *Zip*

Mail to: Publish!, Subscription Department, P.O. Box 51966, Boulder, Colorado 80322-1966.

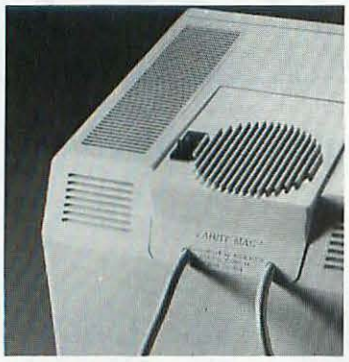
Guarantee: If you're ever dissatisfied with Publish!, let us know. We'll promptly refund you for every issue remaining on your subscription. No questions. No problems.

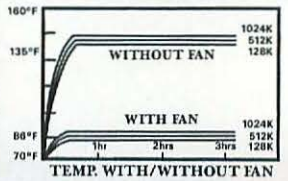
Offer valid in the U.S. only. Please allow 6–8 weeks for delivery of your first issue.

Offer expires June 30, 1987. **5BS82**

COOL YOUR MAC WITH FANNY MAC

BY BECK-TECH





TEMP. WITH/WITHOUT FAN

Built without its own fan, your Mac is prone to overheating. The more powerful your Mac, the hotter it runs. High operating temperatures can cause component failure or even burn out your circuit board.

Intelligently designed by Steve Beck's Beck Tech, FANNY MAC is the Original Macintosh Fan!

- Lowers operating temperature as much as 50°.
- Moves more air through your Mac—24 cu. ft. per min.
- Only Macintosh fan with dependable ball bearing motor. Actually runs quieter the longer it runs. Fanny Mac lasts twice as long as inferior sleeve-bearing fans which grow noisier with age.
- Built-in surge protector.
- Lighted switch that controls both fan and Macintosh.
- Fits flush into Mac's handle.
- Quickly snaps in and out with no effort, no tools.

BEDE TECH DIRECT $74 Reg. $129.95 Value

MacMOVIES™

BY BECK-TECH

We have Steve Beck's MacMOVIES!
Smooth, seamless full screen animation at speeds from single frame to 30 per second. New powerful compression techniques crunch movies down to less memory for rapid playback and maximum storage.

Use images from any Paint program, Laser scanner or video camera. Runs under HFS as well as older systems. 512K memory required. 1024K or 2560K recommended. Second floppy or hard disk drive recommended.

BEDE TECH DIRECT $99

CHROMATRON™ COLOR VIDEO CONVERTER BY BECK-TECH

Enter the world of desktop video production!
This remarkable color scan converter delivers standard NTSC video output, pallet of 16 colors and special effects.
Order VHS videotape demo showing all CHROMATRON and MacMOVIE features.

BEDE TECH DIRECT $9.95

MAX YOUR MAC

WOULD YOU PAY $49 FOR A LIFETIME RIBBON SUPPLY?



Your Bede Tech Ribbon Inker Quickly Pays For Itself!

Motorized Ribbon Inker silently re-inks fabric ribbons again and again. Print quality surpasses new ribbons—and gets better with each re-inking! Specially lubricated black ink actually extends print head life. 4-oz. ink bottle lasts 50-100 re-inkings. Our customers love the quality, simplicity, and savings!

Bede Tech Bonus •
FREE 4 oz. Bottle Black Ink,
FREE Roller and Roller Cover

ImageWriter I & II Ribbon Inker Kit
BEDE TECH DIRECT $49
Reg. $67 Value

Epson Ribbon Inker Kit
BEDE TECH DIRECT $52.95
Reg. $71.50 Value

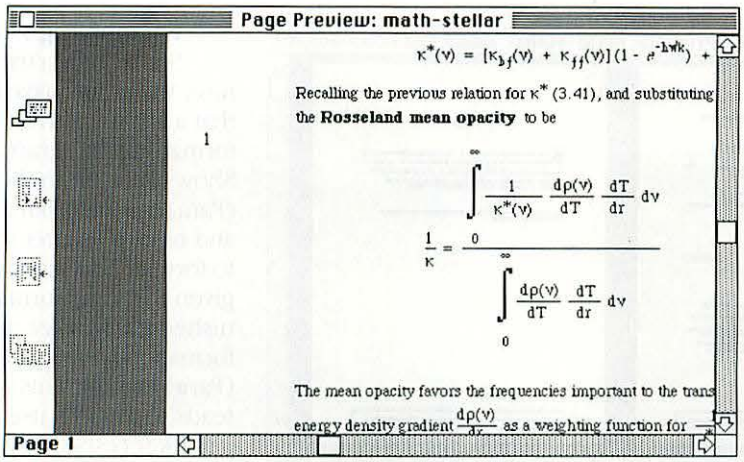
SAVE BIG ON INK & RIBBONS

4 oz. bottle black ink	$ 4.50
2 oz. bottle colored ink	$ 4.50
Pint of black ink	$16.50
Gallon of black ink	$75.00
Color ink kits (2 oz. ink, uninked roller, roller cover)	$ 8.00
Uninked roller w/cover	$ 3.50
ImageWriter ribbon cartridge (box of 2 inked ribbons)	$12.00
ImageWriter II multi-color ribbon Cartridge with refill	$14.95
Ribbon refill only	$10.95
Print head cleaning kit	$ 9.95
Re-inker shut-off timer (for high volume users)	$24.00
ImageWriter silence pad	$11.25

CALL TOLL FREE 800-772-4536

Circle 490 on reader service card

Page Close Up
Here is the view of a page selected with Preview.



1.00/1.05 suggestions, followed by a note about Microsoft's elegant and efficient resolution of the scrolling issue in 3.0.

- Keep it simple, keep it short. Simple: add fancy formatting touches and font variety after you have finished editing your document as plain text. This makes mouse-scrolling faster, and can lead to pleasingly sparing use of visual emphasis.

Short: whenever possible, break long documents into separate smaller documents. That is, select any reasonably independent section of the document, cut it, choose New from the Edit menu, paste the block into the new window, and save it with a suitable name. This way you don't really have to plot the document as a set of separate sections before you write it.

- By far the fastest scrolling technique uses the Go To option of the Search menu in keyboard mode. For this method, remember to first press ⌘-J (the repaginate command) every time you pause to think of something to write. Then, to scroll, press ⌘-G, the actual page number, and Return. With this technique you can scan ten pages in less time than you can drag through two.

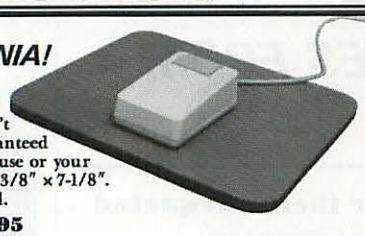
There's a pretty simple reason for the increase in speed. Every time you use the mouse to drag down one more line at the bottom of the screen, the Mac has to rewrite the whole screen. With a properly paginated document, the Repaginate command sequence simply retrieves a starting address from memory and writes the screen only once. With practice, you can inspect document pages at the rate of three seconds apiece.

- Another method for reviewing documents is to plant markers throughout, near paragraph headings (this is a primitive form of outlining). That is, use distinctive markers (we use *zzax, zzbx, zzcx,* and so forth) as tags for sections. Then, to scroll to particular points in the document, use Find in the Search menu. Since, one hopes, you seldom have words in your document beginning with *zz,* the search routine rapidly finds these markers (advanced users may pause for a moment here to consider how these searches are pro-

(continues)

WITH bede tech SAME DAY SHIPMENT

MOUSE PAD MANIA!



We're up to our ears in mousepads with a miniscule imperfect die-cut that you can't even see. But it didn't pass our finicky inspection! Guaranteed perfect performance with your mouse or your money back. Anti-static surface, 9-3/8" x 7-1/8". Designer blue with thick foam pad.

BEDE TECH DIRECT $6.95
Irregulars $3.95 while they last!
Reg. $9.95 Value
Order two more for printer silence pad!

QUANTITY DISCOUNTS FOR BUSINESSES, SCHOOLS–CALL!



KEYBOARD COVERS

Sturdy, Mac-colored, hard covers protect your MAC or MAC PLUS keyboard and number pad from dust, dirt, spills and damage. Specify MAC or MAC PLUS.

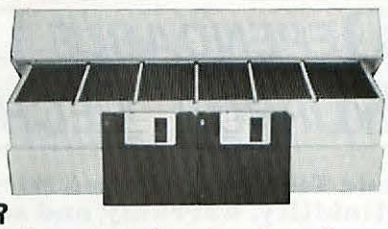
Bede Tech Bonus • MAC Keyboard Command Reference Charts!
BEDE TECH DIRECT $9.95
Reg. $17.50 Value



5-PIECE PREMIUM CUSTOM COVER SET

These heavy-duty, Mac colored, decorator vinyl covers will be custom fitted to your individual MAC and MAC PLUS components. A must for dusty conditions, offices and homes with forced air heating. Call With Your Component Model Numbers.
5-PIECE PREMIUM COVER SET.
BEDE TECH DIRECT $49.00
Reg. $79.00 Value

TWO-FOR-ONE LIFETIME WARRANTY + FREE DISC ORGANIZER



Brown Disc has built a reputation for superior quality and error-free performance among OEM customers. Discs are 100% certified and exceed ANSI standards! These are the finest discs in the world. We prove it with a two-for-one lifetime warranty: If any Brown Disc diskette fails to perform due to defects in materials or workmanship, Brown Disc will replace the defective diskette with two diskettes of the same type.

Bede Tech Bonus • All orders of 50 or more discs are shipped in FREE Disc Organizer! Reg. $9.95 Value.

CALL FOR LOWEST BULK DISK PRICES

Call for our latest low disc prices for all bulk and packaged 3.5" Brown discs. We offer the absolutely best disc value you can find.

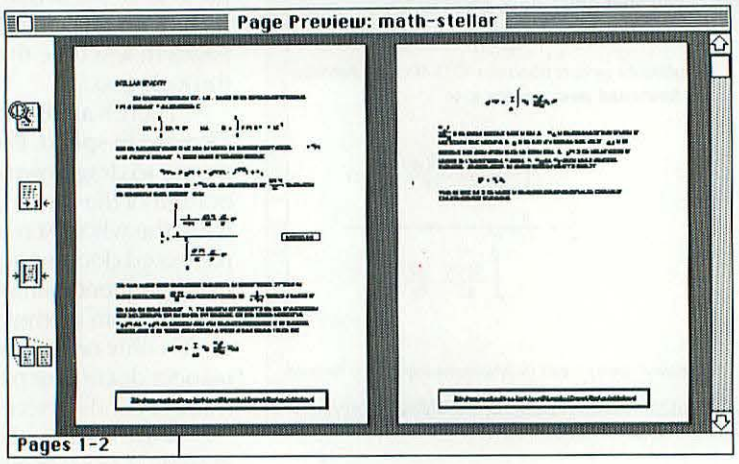


DO YOURSELF A FAVOR GET DISKORGANIZED!

Is your biggest headache finding the disk you want? Then say goodbye to frustration and wasted time with our exclusive DISKO-TECH™ Disk Organizers. Each holds up to 100 3.5" or 5.25" disks. Includes removable dividers and cover. Durable 200 lb. test corr. bd. with glossy white dirt-resistant surface. Stack for easy access in minimum space.
Bede Tech Bonus • Value Four-Pak $27.95. Reg. $39.80 Value
BEDE TECH DIRECT $7.95. Reg. $9.95 Value

Circle 490 on reader service card

Distant Pages
Word's *Page Preview function, represented by the magnifying glass, gives you a close view of a page.*



grammed). When your document is finished, remove them with Change in the Search Menu by specifying *zz?x* (the ? is a wild card) as Find What: and a blank space as Change To:.

• Of course, the ideal solution is a more streamlined method of labeling document sections, and *Word* 3.0 gives it to you with Outlining. In addition to its obvious uses, this feature may be employed as a type of rapid scroller. Switch to Outlining in the Document menu (Full Menus, please). Select the outline section that corresponds to the section of the document you're looking for, click Outlining again, and you'll find yourself in the selected section. Since the outline typically fits on a single page, you can use the mouse for fast overview and selection. Alternatively, if you've created a table of contents (in the Document menu) and have a page number for the section of interest, you can press ⌘-G, the number of the page, and Return to locate text as quickly as possible.

Formatting with Style

Sometimes a trick evolves into a feature. *Word* fans have known for some time that a fast maneuver in 1.00 and 1.05 for reformatting paragraphs goes like this: pick Show (Para) from the Edit menu, copy the (Para) marker from a formatted paragraph, and paste it in after the paragraph you wish to format. The second paragraph is now given the same format as the one that furnished the marker, as if the formatting information were somehow stored under the (Para) marker. This quirk also frequently leads to grief, as users inadvertently delete a marker (especially easy when the markers are hidden) and lose a paragraph's format.

The feature in *Word* 3.0 that roughly corresponds to this trick is the Style choice under Format. You can define a paragraph's style (ruler setting, tabs, and indentation), give it a name, and then Apply it to other paragraphs. A 3.0 user will soon develop a collection of styles corresponding to most-used paragraph formats and will find this faster and more convenient than the (Para)-marker trick (which still works in 3.0).

DRIVE YOUR MAC

DEPENDABLE DISK DRIVES FROM MIRROR TECHNOLOGIES

Bede Tech has selected Mirror hard drives for their unequaled reliability, warranty and support.

Call Bede Tech 800-772-4536 for the latest low Bede Tech Direct Price.

- **FREE ONE YEAR WARRANTY!**
- **TERRIFIC TELEPHONE SUPPORT** on Mirror's 800 line earns customer fan letters!
- **EACH DRIVE IS PREFORMATTED.** Just plug it in and boot it up.
- **MacServe software** option from Infosphere, the Apple recommended networking solution with great single user features.
- **FastPort™** option for your Mac 512E (enhanced).

Magnum 800™
THE ORIGINAL 800K DRIVE!



Priced below Apple's drive, the Mirror Magnum 800 offers several features Apple does not—eject button on the front panel; door that protects the drive mechanism from dust and dirt; longer cable; fully compatible with old and new 512K Mac ROM (without special software); and free one year warranty (compared to 90 day Apple warranty)!
Fully compatible with your 128K, 512K or Mac Plus, the Magnum 800 doubles your floppy storage and cuts data access time in half. Reads and writes 400 and 800K formatted disks. CALL FOR LATEST PRICE

MagNet 20X—
Super Software/ Compact Size

Into its compact cabinet, Mirror's MagNet 20X packs speed and portability together with unequaled user-friendly software and documentation. FREE LIFETIME SOFTWARE UPGRADES and ONE YEAR WARRANTY!

CALL FOR LATEST PRICE



MagNet 20X™ & 30X™ SCSI DRIVES

MagNet 30X—
The Power/Value Package

Priced only slightly higher than other 20 Meg hard drives, Mirror's MagNet 30X gives you 50% more storage! Reliability insured by the Seagate ST225 Winchester drive. Seagate, selected by Apple as their hard drive supplier, has over 3 million hard drives in use today!
Fast and reliable and whisper quiet, MagNet 30X starts up in less than 10 seconds and transfers data at a rate of 5.0 megabits/sec.

Microsoft Miscellany

Outlining and Styles are two of the major new features of *Word* 3.0, so we wanted to show how they relate to do-it-yourself tips from the 1.00/1.05 era. Following now are tips with more modest ambitions but reasonable utility.

- For fast selection, from the top to the middle of a document: set the cursor at the top, flashing, then move the arrow down (don't drag it) to the desired spot and press Shift-Click. This selects everything between the cursor and the arrow and is faster than extended selection. For fast selection, from the middle to the bottom of a document: select the desired line by clicking on the right border (the arrow points left). Then immediately press ⌘-Shift-Click to select that line and everything below it.

- If you use *MacLink* to move a document to the Mac from an IBM PC, you'll find that proportional spacing in most fonts scrambles any columns or tables that were properly aligned in the PC document. Scrambling makes resetting the columns with tabs quite tedious. The only simple solution is to select Dover (which isn't proportionally spaced) as the font for the columns and tables. In principle you could also use Monaco, but it's too frivolous for professional work. Don't bother trying to manually realign columns set in a proportionally spaced font—it's an agonizing experience.

- Word processing gives rise to a new species of annoyance—the *cut-and-paste typo*. This can be a space before a period at the end of a sentence, a space before a comma, a space after a left parenthesis, and so forth. You can check for these with Find by using the symbols for nonprinting characters: ^*w* for white space, thus *Find:* ^*w*. to find sentences ending in (space) (period). Other useful nonprinting symbols are ^*t* (tab), ^*p* (paragraph), and ^*n* (end of line).

- Frequently, when you have set up ruler parameters (such as tabs and margins) at the top of a document or a section, you want to extend the same parameters below it. Normally, when you do a multiple selection with the ruler on, the ruler displays only the parameters for the first line of the selection. Instead, start the selection process where you have the desired parameters, extend the selection down to where you want to stop, then move a tab slightly, let go, and move it back again. The result: the whole selection is formatted the same way as the first line.

- If you abhor page breaks in the middle of paragraphs and want to completely avoid them, just repaginate (⌘-J) from the top and look for the first page break that falls in the middle of a paragraph. Then set a manual break (Shift-Enter) at the beginning of the paragraph and repeat the process (⌘-J and manual page breaks) until the whole document has no breaks in the middle of paragraphs.

Incidentally, it seems faster to scroll a whole screen at a time by clicking in the gray area of the scroll bar than by scrolling the screen with the arrows. Since a standard letter-size page covers about 2½ screens, moving from one page break to the next takes two or three clicks in the gray area.

Word 3.0 promises to make some significant changes in its ease of use and overall effectiveness and is likely to attract new users. However, until you upgrade (or if you don't), these tips should keep you going. □

WITH bede tech & MIRROR TECHNOLOGIES



MagNet 40/40™

Mirror has combined the 40 Meg NEC Hard Drive plus the 3M Tape 40 backup to offer impressive speed and unequaled dependability. Bundled with MacServe software from Infosphere to deliver multiuser, multitasking and multi features.
Perfect for business and big applications like desktop publishing and CAD/CAM where large storage and data integrity are crucial. Conveniently fits under your Mac.
CALL FOR LATEST PRICE

$12.95 NEW!
WORLD'S BEST PRICED SOFTWARE
BEDE TECH COLORING BOOK & CLIP ART
Big full page size illustrations of dinosaurs, dogs, cats and horses. Use over and over for clip art or kids' coloring books. Modify with MacPaint. Print in color with ImageWriter II. Educational! Fun! Useful!
BEDE TECH DIRECT $12.95
Reg. $29.00 Value
Bede Tech Bonus • Both Volume I & II $24.00



THE BEDE TECH PLEDGE
FAST Same Day Shipment
We Don't Bill You Until We Ship You
LOW Factory Direct Prices
30-Day Satisfaction Money-Back Guarantee
Toll Free Product Support 800-772-4536
FREE Catalog With Every Order

QTY.	ITEM	TOTAL
		$
		$
		$
		$
		$
		$
PURCHASE TOTAL		$
Shipping and Handling Charge (Canada, Hawaii, Alaska, $4.50 S&H)		1.50
Ohio residents add 6.5% Sales Tax		$
TOTAL ORDER		$

Send check, money order or charge it
☐ VISA ☐ MasterCard Exp. Date
Card No.
Signature
Name
Address
City
State/Zip

ImageWriter is a registered trademark of Apple Computer, Inc.
Macintosh and MAC are trademarks licensed to Apple Computer, Inc.

bede tech
Member, The Bede Companies, Est. 1976
8327 Clinton Road
Cleveland, OH 44144
In Ohio 216-631-4214
CALL TOLL FREE
800-772-4536
Circle 490 on reader service card
® 1987 Bede Tech

Does your software run like everybody's business but your own?



Because ours can't be outgrown.

That's right. The SBT Database Accounting Library is the first business software package that works just as well whether your business is small or big. Here's why.

One.

It's modular. You can start with the modules you need today. Then add more as your needs grow. And all the modules work together.

Two.

It runs with McMax database management software (a high-performance dBASE III work-alike for the Apple Macintosh).* So you get all the power and flexibility of the most advanced and best selling Database Accounting Software.

Three.

You can customize our software in just hours to fit your business. No matter what size or shape your business is. Because we give you the source code (the key to changing our software) absolutely free.

The SBT Database Accounting Library. Try to outgrow it. We dare you.

Call today for our demo disk and brochure. (415) 331-9900.

THE SBT DATABASE ACCOUNTING LIBRARY.

dProfessional	Time & Billing	$395
dOrder	Sales Order Processing	$295
dInvoice	Billing/Inventory Control	$295
dStatement	Accounts Receivable	$100
dPurchase	Purchase Order	$295
dPayable	Accounts Payable	$395
dPayroll	Payroll/Labor	$395
dLedger	General Ledger/Finance	$395
dAssets	Asset/Depreciation	$295
dProject	Project/Job Accounting	$395
dBackup	Menu/Backup	$ 65

Three Harbor Drive
Sausalito, CA 94965 (415) 331-9900

SBT
CORPORATION

* dBASE III is a registered trademark of Ashton-Tate, Inc. McMax is a trademark of Nantucket, Inc. Copyright 1987, SBT Corporation. Apple and Macintosh are registered trademarks of Apple Computer, Inc.

Circle 630 on reader service card

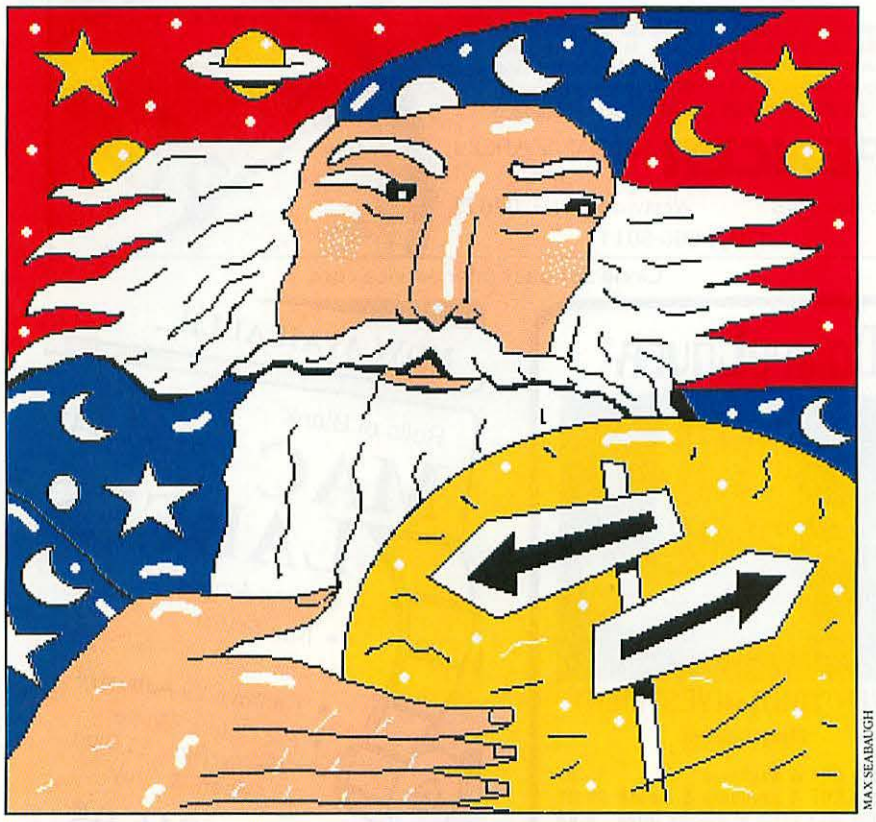
Mac Business Tools

Play out varied scenarios in Excel and forecast the bottom line

by Cynthia Harriman

You run a small company and count on your spreadsheet to tell you not only where you stand financially but also where you might be tomorrow if business gets better—or worse. Want to know the effect of a $2000 increase in sales? Change the sales figure in your income statement, and watch the bottom line as it readjusts automatically. What about a $3000 drop in sales? Change one figure again to see if you're still in the black.

Computerized spreadsheets are famous for allowing you to play "what if" by varying a few assumptions in a financial model and immediately viewing the change in outcome. It's less widely known that some of the more powerful spreadsheets, like *Excel,* let you try several scenarios at once: by employing data tables you can compare all the alternatives at a glance, making planning and projections easier and more reliable.



MAX SEABAUGH

Put Your Options on the Table

Let's look at a simplified model, an income statement for a small business. The figures consist of raw data, except for cost of goods, which is fixed at 42 percent of sales, and net income, which equals revenue minus expenses. (This income statement is shown in columns A, B, and C of "Projections at a Glance.")

You could simply change the sales figure in cell C6, check the results in C18 (net income), then repeat the process for each projected change. But if you make your projections in this piecemeal fashion, the multiple results will overwhelm you in no time. What sales figure would create a loss, given your present fixed expenses? If business increases $6000, how much would go to the bottom line? *Excel* shows the whole picture for you if you define

- a list of different values to substitute in the model;
- the cell where you'd like to substitute the values one by one;
- the area on the spreadsheet that will contain all the variations—the table area; and
- the formula—in this case net income—you'd like to see affected by the changes.

Start by creating the list of values you want to try. You can locate this sequential list anywhere there's room on the spreadsheet. The easiest way to enter the list is with *Excel*'s Data Series command. Type

(continues)

the first value in cell E6, then select the range where the list will be—E6 to E16 in the example. Select "Series" from the Data menu, and in the dialog box that appears choose "Series: in columns", "Type: linear", and "Step value: 4000". Click "OK", and you've told *Excel* to create a series of numbers down column E in increments of 4000. Naturally, you can pick any increment for your data series.

Next to these sales values, you want *Excel* to create a column of net income figures corresponding to the values—your table of choices. Type =C18 in cell F5 to indicate that the number at the top of the adjacent column will be the net income formula. (As always, *Excel* shows the results of the formula rather than the formula itself. That won't affect the table.)

At this point you've carried out two of the four necessary steps: you've defined the list of values and indicated the formula to be affected. All you need to do to find the results is to specify the table location and the cell in the original model where each value in the list will be "substituted." Select the entire table area (the range E5 to F16—the smallest possible rectangle that includes both the list of values and the formula) and then pull down the Data menu and choose "Table". You'll see a dialog box like the one in "Table the Issue."

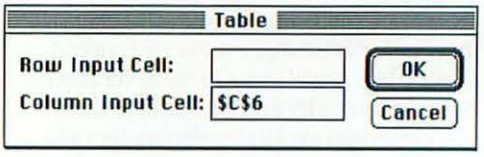


Table the Issue

In the Table dialog box, you specify the location of the value you're changing. If your list of substitute values is arranged vertically, enter a column input; if the list is horizontal, enter a row input. Two-input tables, which have two variables, need both row and column inputs.

Click next to Column Input Cell, since your list of values is in a column, then click back on the spreadsheet in cell C6 to show *Excel* which original value the list of values replaces. Dollar signs ($$) appear automatically in the dialog box. Even if you move the table to another part of the spreadsheet, C6 will always be your input cell.

(continues)

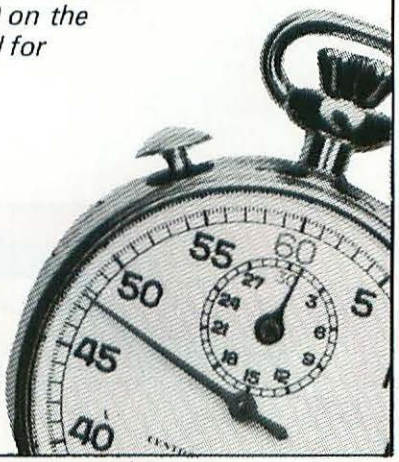
IT'S ABOUT TIME

APL.68000
for the Macintosh

APL.68000 is a highly optimized 68000 Assembler based APL Interpreter which takes full advantage of the Macintosh features including user-defined pull-down menus, Dialog and Alert boxes and a complete interface to Quickdraw graphics. All of this along with a 777k APL Workspace (MacPlus), are the reasons that APL.68000 on the Mac sets the industry standard for performance and capabilities.

$295

Order direct for $295 + shipping ($7 US, $10 Canada)
VISA/MC/AMEX add 4%. Check, MO or COD. Demo
Disk available for $15 + shipping ($2.50 US, $6 Canada)
May be applied to full version purchase.
30 DAY MONEY BACK GUARANTEE



SPENCER ORGANIZATION, INC.
P.O. Box 248 Westwood, N.J. 07675
(201) 666-6011

Circle 561 on reader service card

CompuCover®



COVER YOUR INVESTMENT

DUST COVERS

Macintosh CRT & Keyboard	12.95
Macintosh CRT & Keyboard & Mouse	13.95
Macintosh Disk Drive or Floppy Drive	5.95
Macintosh Plus Keyboard	8.95
Macintosh CRT & MAC Bottom Disk	15.95
Macintosh Laser Jet Printer	10.95

DISK WALLETS

3½'' Disk for 20 Disks	16.95
3½'' Disk for 10 Disks	14.95
3½'' Disk for 6 Disks	9.95

Anti-Static-different colors

ORDER LINE
1-800-874-6391
FLORIDA ORDER LINE
1-800-342-9008
Dealer Inquiries Invited

CompuCover
P.O. Box 310 Dept. M
Mary Esther, FL 32569

Customer Service
(904) 243-5793
Telex 469783

Circle 496 on reader service card

NOW AVAILABLE...

Rolls of Blank
MAC LABELS 2-3/4" X 2-3/4"

- Wrap Around
- Non Smear
- Pin-Feed
- Removable Adhesive
- Six Colors: White, Yellow, Pink, Lt Blue, Lt Green, & Grey

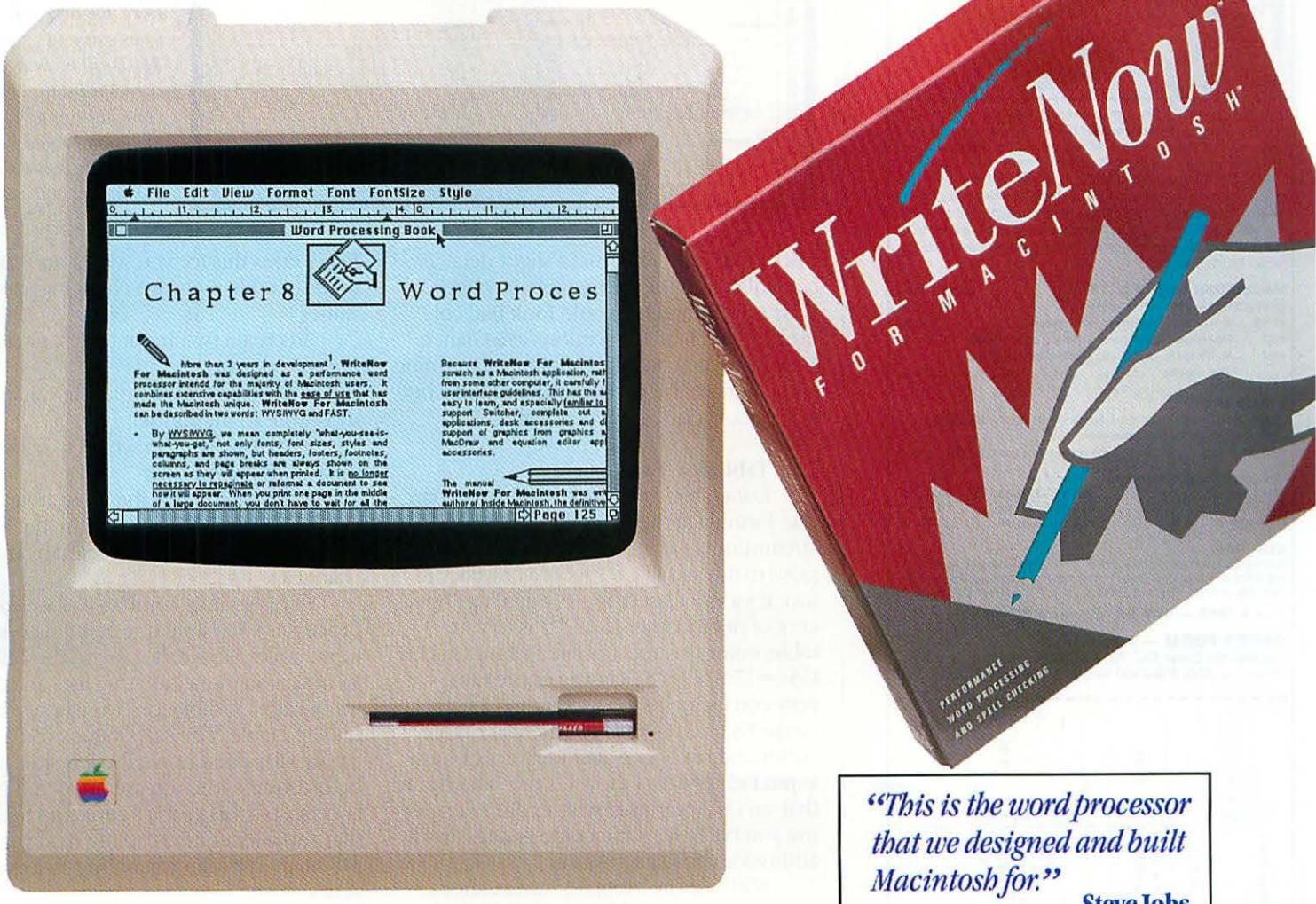
500 for Only $16.95
1000 for Only $29.95

HOW TO ORDER!
Total cost of rolls ordered. Add shipping charge ($2.50 for the first roll and 50¢ for each additional roll). California residents add 6.5% sales tax. COD orders add $2.00. VISA/MASTER CARD accepted, include card no. & expiration date. Send check or money order for GRAND TOTAL to

DATA WIZ
21115 Devonshire Blvd. Suite 465-B
Chatsworth, CA 91311

Circle 612 on reader service card

Performance Word Processing is Here...



"This is the word processor that we designed and built Macintosh for."
Steve Jobs

Introducing WriteNow™ For Macintosh,™ the next step in word processing. WriteNow For Macintosh combines the power you would expect from a dedicated word processing system with the ease of operation that you're used to with MacWrite.™

☐ **Performance.**
This program is fast. Very fast. *Especially with large documents.* Saving, scrolling, finding and replacing, and printing happen *lightning-fast.* Regardless of document size, repagination is automatic and reformatting is instant.

☐ **On-Screen Multiple Columns.**
You can do true *WYSIWYG* (What-You-See-Is-What-You-Get) editing in *one, two, three, or four columns* directly on-screen. Page breaks and characters from 4-127 points are displayed on-screen as well.

☐ **50,000-Word Spelling Checker.**
A fast, on-line 50,000-word spelling checker is included. You can add or delete words and create "personalized" dictionaries. The spelling checker also has a handy "guess" feature that recommends the correct spelling of misspelled words.

☐ **Headers, Footers, and Footnotes.**
Now you can display a unique header and footer for each page. Footnotes can be automatically numbered and edited on-screen as well.

☐ **Unlimited Open Documents.**
Open as many documents as memory allows, making cutting, pasting, or reviewing between windows a breeze.

☐ **Embedded Graphics.**
Graphic images can be part of a sentence, part of a paragraph, or a separate paragraph, and can be proportionally or freely sized.

And Much More.

To learn more, contact your local computer dealer today.

Suggested Retail: $175
Min. Requirement: Runs on any Macintosh. (Macintosh 512K or larger recommended for spell checking.)

T/Maker®

T/Maker Company
1973 Landings Drive,
Mt. View, CA 94043
(415) 962-0195

T/Maker is a registered trademark of T/Maker Co. WriteNow is a trademark of AIRUS, Inc. Macintosh is a trademark licensed to Apple Computer, Inc. MacWrite is a trademark of Apple Computer, Inc.

Circle 332 on reader service card

IT ISN'T OVER 'TIL IT'S COVERED



Your Macintosh is a very special computer, therefore, it deserves the best dust covers available. **Computer Cover Company** designs these covers specifically for each Macintosh component. Our workmanship and quality has been acknowledged by thousands of our discerning customers.

If you have tried vinyl, naugahyde or cloth dust covers, you will have already discovered for yourself why our covers are made of first quality 400 denier rip stop nylon. Our covers are water resistant and anti-static, they will not tear, crack or create lint problems. All seams and hems are double stitched to insure you years of lasting quality and worry free protection for you Macintosh.

MACINTOSH COVER SETS — **BASE PRICE**
(SEPARATE COVERS FOR EACH COMPONENT) (See below)
#M1B. . . Macintosh, keyboard, and mouse $19.95
#M1. . . . Macintosh, keyboard, printer, and mouse $27.95
#M2 . . . Macintosh, keyboard, printer, external drive, and mouse $29.95

STAND UPS:
Universal printer stands designed to raise your printer for easy viewing and provide ample space below for paper storage.
Regularly $18.95 . . . . *w/Purchase of Cover Set Only* **$10.95**

IMAGEWRITER RIBBONS: Box of Six — 5 or Less
Black . . . . $21.95/$3.66 ea. — $4.50 ea.
Solid Colors . . . . $26.95/$4.50 ea. — $6.00 ea.
Multicolored I/W II . . . . $52.50/$8.75 ea. — $10.00 ea.

SLIP UPS:
Our own special mouse pad measures 8" x 9½". Help keep your mouse clean and rolling easy. Now four colors to choose from to accent your covers: Bone, Blue, Gray and Red. Regulary $9.95 . . . . *Direct Orders* **$6.95**

★ ★ **FREE — SLIP UP** w/Purchase of **COVER SET.** ★ ★

ORDER FORM — Complete and Mail To:
Computer Cover Co., P.O. Box 3080, Laguna Hills, CA 92654
Orders Only **(800) 235-5330** — Calif. & Inquiries **(714) 380-0085**

Macintosh set number — **Base Price** — [No Additional Charge]
Monitor: ☐ 128/512/Plus [NAC] ☐ Mac atop HD20 (add $1.00)
Keyboard: ☐ 128/512 [NAC] ☐ Keyboard PLUS [NAC]
Printer: ☐ Imagewriter [NAC] ☐ Imagewriter II (add $1.00)
☐ Laserwriter (add $5.00) ☐ 15" Imagewriter (add $2.00) ☐ I/W II wisheet feed (add $5.00)
Disk Drive: ☐ 400K [NAC] ☐ 800K [NAC] ☐ HD20 (add $1.)
Color Choice: ☐ Bone (similar to the Mac) ☐ Blue (royal) ☐ Tan ☐ Brown ☐ Platinum
Additional Items Ordered (description) — **Quantity** — **Price**
Subtotal $ ___
CA residents add 6% sales tax $ ___
U.P.S. Ground (foreign orders/FPO/APO extra) $ 3.00
Total $ ___
Name ___
Address ___
Zip ___
Daytime Phone ( ) ___
Payment enclosed ☐ Bill my Visa ☐ M/C ☐
Card # ___ Exp.: ___ / ___
Signature ___

Circle 620 on reader service card

 File Edit Formula Format Data Options Macro Windo 5:59

F5 =C18

MW table - 1 input

	A	B	C	D	E	F	G	H	I
1	assumptions:				net income, as "sales" varies				
2		cost of goods = 42% of sales							
3		net income = revenue - expenses							
4					sales	net income			
5	revenue					6,972			
6		sales	122,000		110,000	12			
7		cost of goods	(51,240)		114,000	2,332			
8		interest	987		118,000	4,652			
9					122,000	6,972			
10	expenses				126,000	9,292			
11		rent	9,000		130,000	11,612			
12		supplies	1,025		134,000	13,932			
13		wages	47,750		138,000	16,252			
14		insurance	600		142,000	18,572			
15		telephone	2,500		146,000	20,892			
16		utilities	3,900		150,000	23,212			
17									
18	net income		$6,972						
19									
20									

Projections at a Glance
From a simple income statement, you can set up a one-input table to study projected changes in any value in the spreadsheet. Here, the original sales value of $110,000 is changed; corresponding net income figures generated in the table for each sales value show the impact of the change.

Click "OK", and after just a slight delay *Excel* will create the entire table of values. Your finished table should look like columns E and F of "Projections at a Glance."

Now you can take the time to examine and compare the alternatives and get a better idea of your business's health.

Table for Two?

Data tables can work with more than one formula at the same time, further streamlining your projections. Let's suppose that you'd like to figure your tax bill, too. It's a calculated figure, equal to 17 percent of net income. To add this to your table, enter the appropriate formula in cell G5: =17%*C18. Select the entire table–now consisting of three columns, or the range E5 to G16–execute the Data Table command, and once again enter a Column Input Cell of C6 to show it's the sales figure that varies. Your table will recompute, giving you both the net income and the tax liability for each sales figure.

With a more complex spreadsheet, you may have several important formulas whose outcome would be affected by a change in a single value. You can carry this type of table even further, adding as many formulas as you want to adjacent columns and enlarging the table to include them.

Another type of two-way table is limited to only one formula but can show the effect of changes in two different values. Let's suppose that your business, like many, is afflicted by skyrocketing liability insurance costs. Using the same income sheet as before, you'd like to see the effect that changes in both sales and insurance would have on your bottom line in coming years. *Excel* does this for you with a *two-input table*–a table with two changing sets of values.

To create two-input tables, *Excel* needs to know

- the two lists of different values to substitute in the model;
- the two cells in which to substitute the values one by one;
- the location of the table area; and
- the formula–once again, net income–you want to see affected by the changes.

If this sounds familiar, it's because the process is very similar to building one-input tables. Just make sure to use only one formula and to include two lists and two input cells. "A Table for Two" shows the finished table. The sales values you'd like to try are displayed down the left side, just as before. Across the top are projected insurance costs–this year's figure, and figures that show insurance tripling next year to $1800, then tripling again in subsequent years.

Start with a new blank table, with projected sales values down the left-hand column as before. Now put some likely values for insurance across the top of the table area; again, Data Series simplifies this process. If you think your insurance costs are likely to triple each year, start with the current amount of $600 in cell F5. Select the range F5 to I5, then pull down the Data Series command. This time, specify that the series be in a row, a growth series with a step value of 3. (Linear series add the step

(continues)

Peripheral Land, the SCSI Experts





RANKED #1 IN SEPT. ISSUE OF *MacUser

***' THE PERIPHERAL LAND DISK SATIFIES BOTH THE PRICE-CONSCIOUS AND THE SECURITY -CONSCIOUS USER'**

Macworld **Sept. issue.**

- **BACK-UP PROGRAM TO BACKUP THE HARD DISK TO FLOPPIES BY FILE, FOLDER, VOLUME, OR INCREMENTAL FILES.**
- **IT ALSO COMES WITH A COMPLETE SET OF FLEXIBLE UTILITIES TO FORMAT AND PARK THE DRIVE.**
- **ALL PERIPHERAL LAND HARD DISK DRIVES RUN AS A SINGLE HFS VOLUME, OR CAN SUPPORT HFS AND MFS VOLUMES SIMULTANEOUSLY WHEN FORMATTED.**
- **ALL UNITS COME WITH FULL YEAR WARRANTY.**

PL SERIES SCSI HARD DISK

These are the fastest SCSI hard disks available for Macintosh Plus or Macintosh 512. The main features include plated media hard disks for long reliable use, which are 100 times harder than oxide media. The PL hard disk auto-boots either from the Macintosh Plus or the Macintosh 512/E with our Macport Plus.

PL 20, 21meg formatted drive/**PL 30,** matted drive/**PL 172,** 172meg unformatted drive. **PL 230,** 230meg formatted drive.

MacBack Plus SCSI TAPE BACK-UP

Say goodbye to floppies and hello to 22 megabyte tape cartridges. The MacBack Plus can either back-up or restore 20 megabytes in minutes. The back-up criteria can be selected by file, folder, volume, or incremental files. The MacBack Plus is available in either 22 or 60 megabytes of awesome capacities.

MacBack Plus 20/MacBack Plus 60

The MacFast
High performance Series SCSI Hard Disk

The MacFast SCSI series is our top of the line hard disk for the ultimate Macintosh power user who demands speed from the hard disk. What makes the MacFast hard disk superior? An 8k buffer used for caching that maximizes raw data transfer on the SCSI bus to its fullest potential. A Turbo-Stream intelligent disk/tape controller that has its own Zilog Z-8 micro processor with DMA that optimizes data transfer at a phenomenal 5 megabytes nonstop per minute between the MacFast disk and MacBack tape unit.

MacFast 20, Formatted/**MacFast 30** Formatted **MacFast 80,** unformatted/**MacFast 172,** unformatted

MacBack
(QIC-02) High-performance Tape Back-up Unit

Our companion tape back-up system for the MacFast. Our exclusive Turbo-Stream Technique has the ability to back-up and restore 20 megabytes of data in a blistering 4 minutes. In the 5 megabyte volume mode, MacBack will back-up or restore in exactly one minute, incredible but true. This is the fastest tape back-up unit available today for the Macintosh.

MacBack 20/MacBack 60

MACSTOR Series

a 10 or 15 megabyte removable SCSI hard disk subsystem for the Macintosh Plus and the Macintosh 512K. This reliable removable Winchester cartridge provides unlimited capacity while providing complete data security. It can also be used as a back-up device instead of a tape. MACSTOR, When security and unlimited capacity is a must.

MACSTOR 10 a 10meg removable drive.
MACSTOR 15 a 15meg removable drive.

MACPORT Plus Auto-booting SCSI Adaptor for the Macintosh 512 and 512/E

Here's where Peripheral Land expertise really shines. An auto-booting SCSI adaptor for the Macintosh 512 or 512/E requires the new 128k rom. This easy, convenient upgrade provides full SCSI compatibility with our hard disk or any other SCSI hard disk. Now, you can boot directly from the hard disk, just like the Macintosh Plus without the expensive price tag.

Macintosh Plus, Macintosh 512, and Macintosh 512/E are trademarks of Apple Computer, Inc.

THE SCSI EXPERTS
PERIPHERAL LAND

Peripheral Land
47800 Westinghouse
Fremont, CA 94538
(415) 657-2211

Circle 509 on reader service card.

We have the Drive to be the Best... and the means to Back it up!



ADON

High Quality and Reliable SCSI Hard Disk and Tape Backup subsystems offer top of the line performance in a space-saving, compact package that fits under your Macintosh.

- Superior Value
- Easy to Use and Install
- Quiet, Cool Operation
- Increase Productivity
- Sophisticated Utilities
- Full Service and Support
- Complete Product Line
- Extended Warranty

HARD DISK	HIGH PERFORMANCE
ADON 20	ADON 40HS
ADON 30	ADON 60HS
ADON 40	ADON 89HS
ADON 60	

Finally, A Network Backup Solution That Works!

The most advanced Tape Backup product on the market today featuring the speed of a Streaming Tape Drive with file-addressable access of backup data directly from the Macintosh desktop.

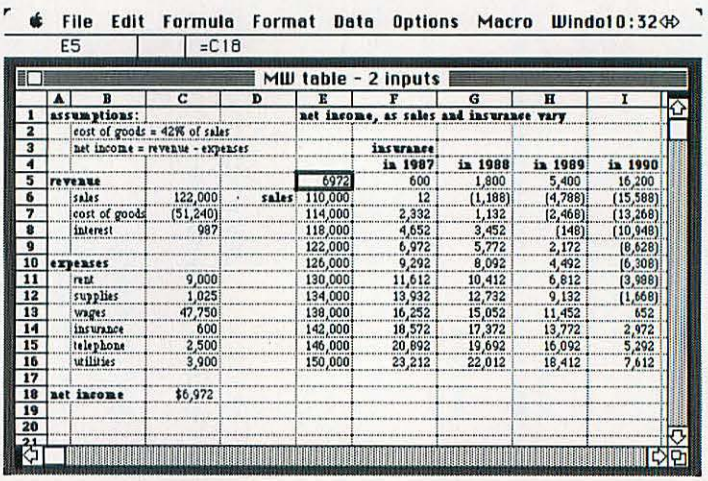
ADON Disk and Tape
ADON 30/40
30 MB Disk + 40 MB Tape

Tape Backup only
ADON TD-40 40 MByte Tape

For additional information call:
(206) 823-2030

ADON Corporation
12326 134th Ct. NE
Redmond, WA 98052

Circle 632 on reader service card



A Table for Two
Two-input tables let you study the effect of changes in two variables at once. This example varies sales from $110,000 to $150,000 while varying insurance from $600 to $16,200. Checking the same variations manually would involve 44 different "what-if" substitutions.

value for each increment; growth series multiply by the step value to generate each new value in the series.)

With the sales values from the last example and the projected insurance costs, the table now has two lists, one for each value you want to vary. Add the formula to the upper-left corner of the table by entering =C18 in cell E5, signifying that the value in this cell will be equal to the net income formula.

Now select the table area, from cell E5 to I16, pull down the Data menu, and choose Table. This time you'll fill in both choices in the dialog box that appears. The Row Input Cell is C14, the location in your original model for the insurance figure; as before, the Column Input Cell is C6, the sales figure. Click "OK", and the table fills with values.

You can use these values to postulate any possible combination of factors. What if insurance triples and sales go down? How much will sales have to increase to attain the same net income while insurance mounts? If sales stay flat, how many years can you stay in the black if your insurance cost increases each year? The table contains all these answers and more, giving you a powerful analytical tool.

Tips for Tables

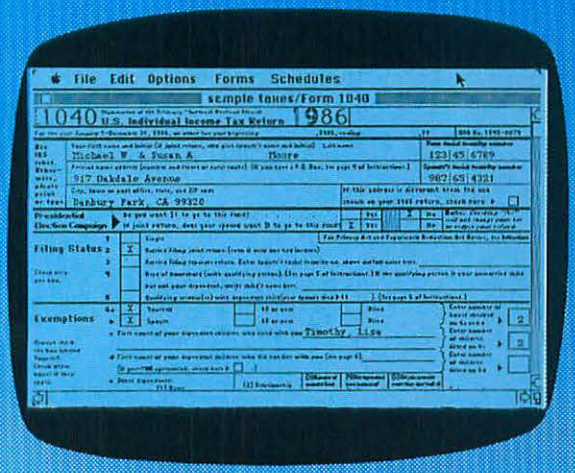
The following advice may help you to work with tables more efficiently.

- Tables are dynamic, as are any other formulas in *Excel*. That is, they recalculate automatically when the values on which they depend are changed. In our example, any change in the original income sheet would cause the table to recalculate.
- Individual "answer" cells in an *Excel* table can be copied, but they can't be cut or cleared from the table area. Try it, and you'll get the message, "Illegal table operation". You can, however, cut or clear the entire table from your worksheet. (Remember that the table constitutes the smallest possible rectangle that includes both the table formula or formulas and any lists of values.)
- You can move the Table dialog box (the one that asks for column and row input cells) if it's in your way. Like any other dialog box with black stripes in the title bar, this box can be repositioned so that you can easily click on any input cell on your spreadsheet.
- Complex tables may take some time to compute–after all, you're asking *Excel* to redo the same formula several times. If you find that table calculations (and automatic recalculations as values change) are paralyzing your spreadsheet, choose "Calculation . . . Automatic Except Tables" from *Excel*'s Options menu. Don't forget, though, to change back to Automatic Calculation or tell *Excel* to Calculate Now (also in the Options menu) when you're finally ready to have your tables updated.

Once you've spent valuable time putting data into your spreadsheets, you'll want to maximize your ability to get answers out quickly. Data tables can provide an important shortcut for in-depth analysis of options and alternatives. □

MacInTax™

THE INCOME TAX PROGRAM



"The best of the crop is MacInTax . . ."
MacUser, January 1986

"I give MacInTax my highest recommendation."
MacWorld, March 1986

". . . our personal favorite: MacInTax"
InfoWorld, March 3, 1986

"SoftView's MacInTax is wonderful . . ."
Jerry Pournelle, Columnist, **Byte**, August, 1986

TOP-RATED TAX PROGRAM:

- DISPLAYS EXACT FORM ON SCREEN
- PERFORMS TAX CALCULATIONS AUTOMATICALLY
- LINKS ALL FORMS AND SCHEDULES AUTOMATICALLY
- DISPLAYS AND LINKS WORKSHEETS AND ITEMIZATION WINDOWS
- DISPLAYS COMPLETE IRS INSTRUCTIONS ON SCREEN
- PRINTS ENTIRE FORM WITH ALL DATA — FULLY IRS APPROVED FOR SIGNATURE AND SUBMISSION
- ALLOWS ESTIMATES FOR TAX PLANNING AND "WHAT IF" PROJECTIONS
- INTERFACES DIRECTLY TO SPREADSHEETS, DATA BASES, ACCOUNTING PROGRAMS
- OPERATES ON ALL MACINTOSHES, ONLY REQUIRES ONE DISK DRIVE. MacInTax FEDERAL CONTAINS 26 FORMS AND SCHEDULES. MacInTax CALIFORNIA CONTAINS 15 FORMS AND SCHEDULES.

SOFT VIEW

SOFTVIEW®

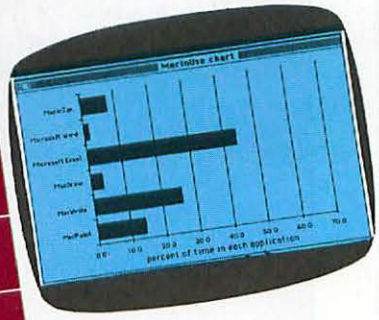
MacInTax FEDERAL: $99.00
(Yearly updates: $45.00)
MacInTax CALIFORNIA: $45.00
(Yearly updates: $25.00)
MacInUse: $49.00

To order call: 1-800-MACNTAX (Outside California)
1-800-MACVIEW (within California)

MacInTax AND MacInUse ARE TRADEMARKS OF SOFTVIEW, INC. MACINTOSH AND MACWRITE ARE TRADEMARKS OF APPLE COMPUTER, INC. MULTIPLAN, EXCEL AND MS WORD ARE TRADEMARKS OF MICROSOFT CORP.

INTRODUCING

MacInUse™



FIND OUT WHAT YOUR MAC IS DOING!

- AUTOMATICALLY RECORDS EACH APPLICATION USED — NAME, DATE, START TIME, DURATION, AND OPTIONAL COMMENT.
- MAINTAINS USAGE INFORMATION IN A "TEXT" FILE — EASILY EXPORTED TO OTHER APPLICATIONS.
- INCLUDES TEMPLATES AND MACROS FOR MACWRITE,™ MS WORD,™ MULTIPLAN,™ AND EXCEL.™

MacInUse – WHO NEEDS IT?

- PEOPLE WORKING AT HOME — FOR CONTEMPORANEOUS TAX RECORDS.
- CONSULTANTS — FOR CLIENT BILLING RECORDS.
- MANAGERS — FOR EMPLOYEE PRODUCTIVITY AND RESOURCE TRACKING.

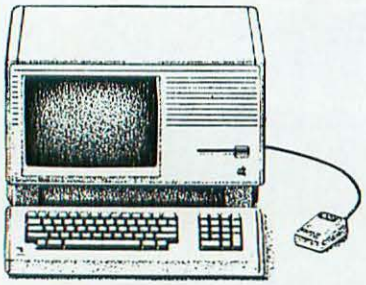
THE MACINTOSH TRACKER

TRACKS THE USAGE OF YOUR MAC

Circle 456 on reader service card

When you're ready to mouse around...

Do It For Less With a Lisa!



$799 The Lisa™ Professional

512K RAM - 400K Drive
Warranted/Reconditioned

Runs Macintosh Software

The Lisa Professional. A powerful computer upgradeable to a full Mb of RAM, 40 Mb internal hard disk capacity, 400K internal disk drive, large 12" screen and keyboard complete with numeric keypad. And, powerful as it is, it's easy to run as any Macintosh™ and a whole lot easier to afford!

GREAT APPLE BUYS!

400K Mac Ext. Drives.....	**79.00**
400K w/UDC for][+, IIe...	**169.00**
Apple Modem 300.....	**89.00**
Apple Modem 1200.....	**195.00**
Comrex Deluxe Joystick...	**16.95**
BPI Accnt. Modules.....	**189.00**
Quark QC 10 HD.....	**795.00**
Quark QC 20 HD.....	**895.00**
Apple 5Mb Profile.....	**595.00**
Apple /// 256K System.	**599.00**
Apple //c Carry Case.....	**19.95**
Apple SilenType Printer..	**19.95**

ORDERLINE -

1-800-821-3221

For a complete listing of products CALL FOR OUR LATEST CATALOG

VISA

Sun Remarketing

PO Box 4059 Logan, UT 84321

Apple and the Apple logo are registered trademarks of Apple Computer Inc.

Circle 618 on reader service card

Updates

This list brings you highlights of software recently received but not yet tested. The first price is the upgrade cost for registered owners; the second is the current list price.

Achbar version 2.03 supports color printing on the ImageWriter II, allows ruler settings to be copied, adds extended and condensed type styles, and supports both 7- and 8-bit Hebrew fonts. On either 400K (without color printing) or 800K disk. Davka Corp., 845 N. Michigan Ave. #843, Chicago, IL 60611, 312/944-4070. $49.95; $249.95 new.

Double Helix version DH1+ operates with *MultiUser Helix*. This edition changes some menu items and adds 19 calculation tiles and features such as the ability to prohibit data entry that doesn't meet predefined criteria. Odesta, 4084 Commercial Ave., Northbrook, IL 60062, 312/498-5615. $100 (upgrade only).

EZTax-Plan version 5 covers 1985 and 1986 under current tax law, 1987 under transition rules, and 1988 and beyond under the new tax laws. Available for *Excel* or *Multiplan*. EZWare Corp., 29 Bala Ave., Bala Cynwyd, PA 19004, 215/667-4064, 800/543-1040. Upgrade from Personal Edition $38; Personal Edition $95 new, Business Edition $295 new.

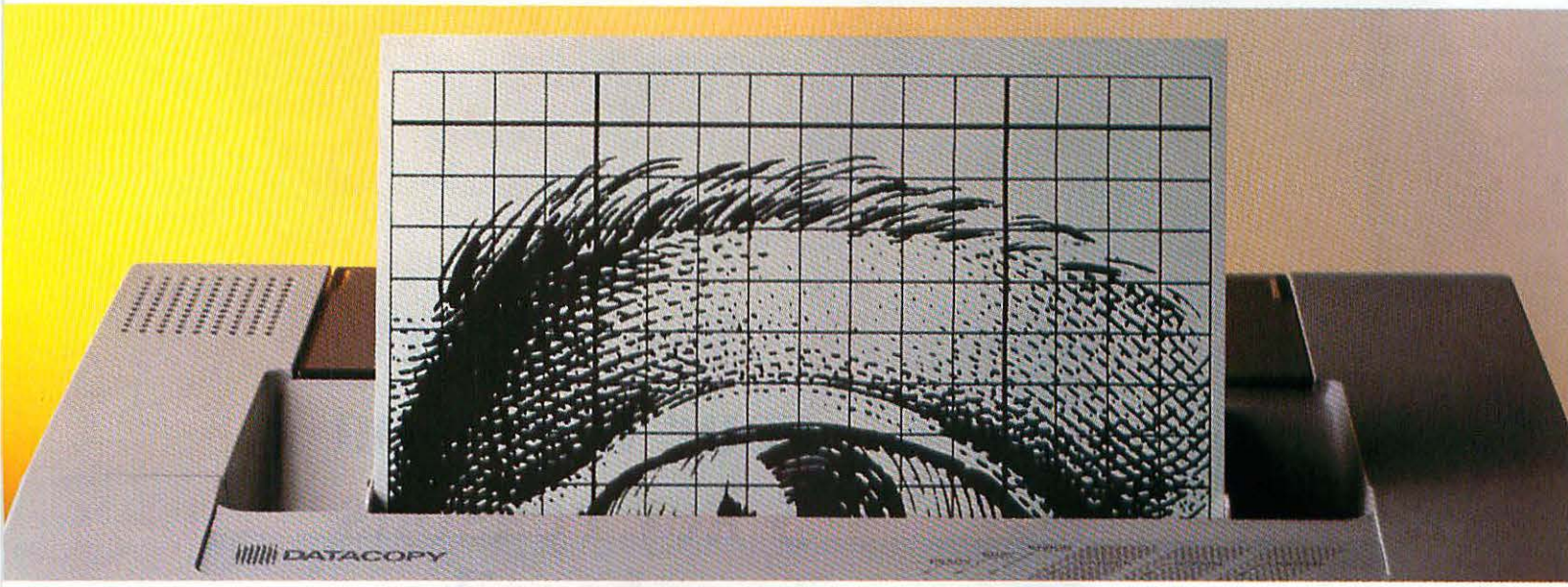
MacSpec version 2.0 imports graphics and supports CSI and Mil-490 specification formats. There are more formatting options and a Preview Document command. LM Software, P.O. Box 93, Belmont, CA 94002-0093, 415/592-4512. $30; $199.95 new.

myDiskLabeler version 2 works with the Mac Plus and HFS as well as earlier models and system software. A LaserWriter printing option and the option to print in color on the ImageWriter II are included. Williams & Macias, P.O. Box 19206, Spokane, WA 99219, 509/458-6312, 800/752-4400. Upgrade from B & W version $25, from color version $15; $64.95 new.

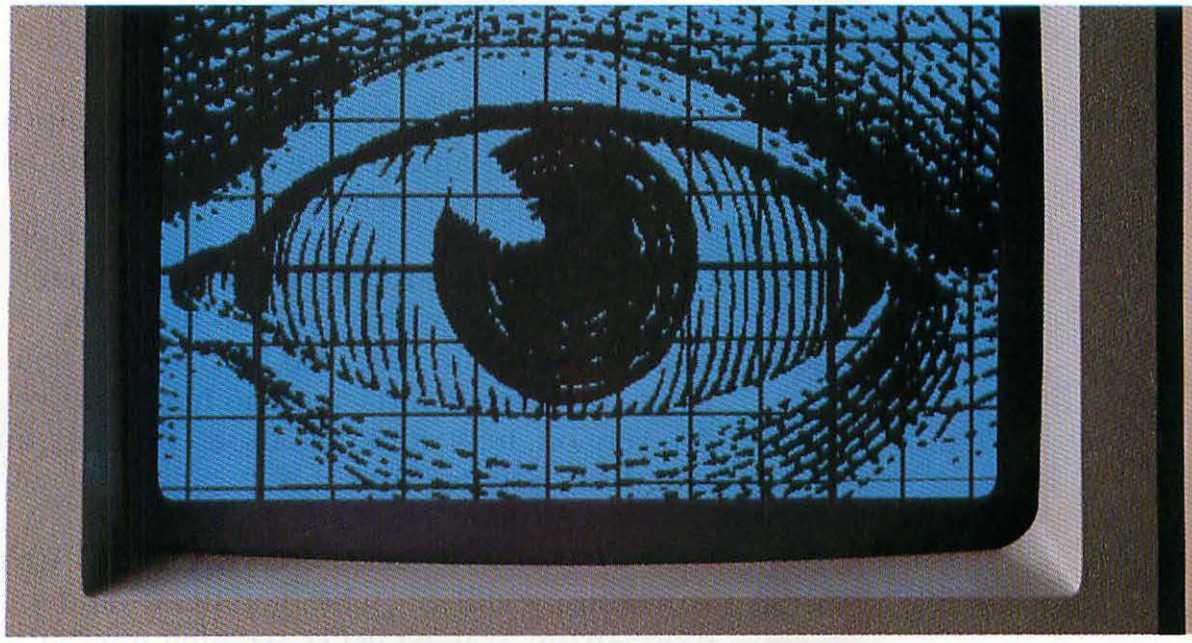
The Perfect College 1987 edition updates its information about 1650 accredited four-year colleges in the United States. Mindscape, 3444 Dundee Rd., Northbrook, IL 60062, 312/480-7667. $19.95; free with purchase of *The Perfect Score*.

Personal Bibliographic System version 2.6 installs on a hard disk, offers type style choices in whole or partial fields, and allows searching by record numbers. Personal Bibliographic Software, Inc., Box 4250, Ann Arbor, MI 48106, 313/663-9052. $25; $295 new. □

How the pictures (and words)



get into the Mac or PC



for desktop publishing

to create documents like this.

To get the most out of desktop publishing, you'll want to get images *in* to your documents.

Datacopy is the leading supplier of scanning devices that feed pictures into your computer. (For the PC, you can even read in words, using our OCR or OCR Plus™ software.)



Shown: Datacopy's JetReader,™ and Model 730, the only flatbed scanner available.

Both offer professional, *laser* quality resolution of up to 300 dots per inch. Once images are scanned in, you can manipulate them using your desktop publishing software (e.g. PageMaker,™ FrontPage,™ ReadySetGo,™ popular paint programs, and more).

These reliable, affordable tools help you get more *out* of desktop publishing, by helping you get more *in.* So why not make a toll-free call today, and get answers to your questions about software, hardware, ease-of-use, and how to order.

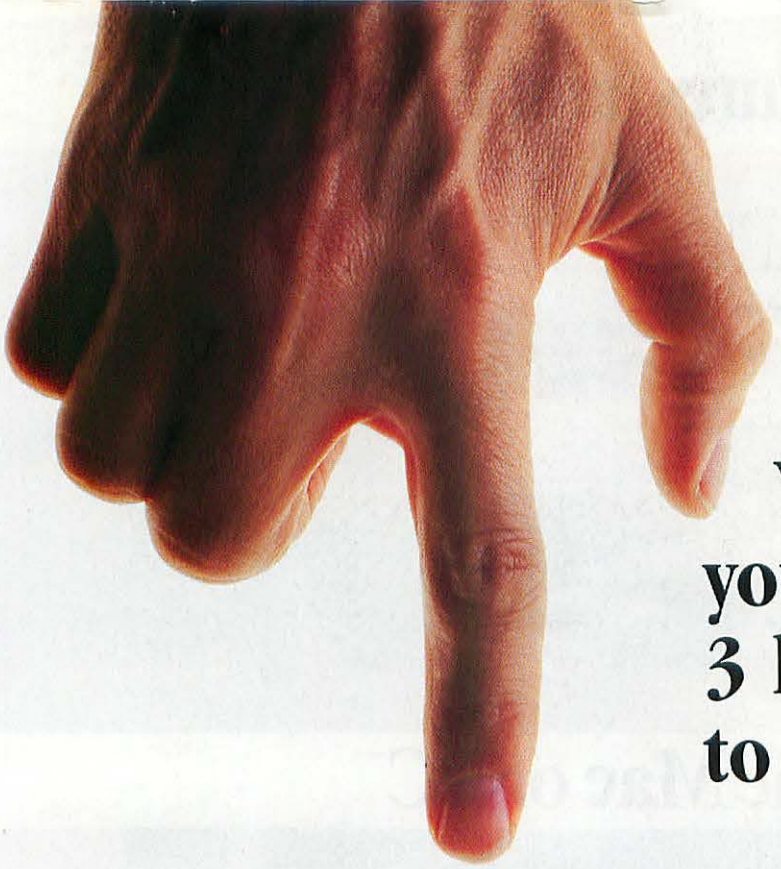


Questions? Call the Hotline now! 800-821-2898
In CA: 415-965-7900

DATACOPY
The Eye of the Computer™

Trademarks: The Eye of the Computer, JetReader, OCR Plus—Datacopy Corporation, PageMaker—Aldus Corporation. FrontPage—Studio Software Corporation. ReadySetGo—Manhattan Graphics Corporation. Macintosh—Apple.

Circle 637 on reader service card



You've put your finger on 3 key reasons to subscribe...

1. **SAVE OVER $23 A YEAR!** Your subscription means a handsome savings for you—almost 50% off the cover price.

2. **GET THE MOST FROM YOUR MAC!** Your money-saving subscription also insures a steady flow of the practical information you want—reviews of software and hardware you can rely on, new applications, techniques, and practical "how-to" tutorials.

3. **GET THE MACWORLD GUARANTEE!** We're so certain you'll get what you need—and more—from MACWORLD, we guarantee it! If for any reason you're not satisfied with MACWORLD, just let us know, and we'll promptly refund the cost of your subscription for every unmailed issue.

MACWORLD

The Macintosh™ Magazine

Save

$23.40
off the
~~$47.40~~
cover price

SUBSCRIBE NOW

☐ **YES!** Please send me one year (12 monthly issues) of *Macworld* for only $24. I'll save $23.40 off the annual cover price of $47.40, a savings of almost 50%. (That's $6 off the regular subscription rate of $30.)

SAVE EVEN MORE!
☐ $37.90 for 2 years (24 monthly issues)

☐ Payment enclosed ☐ Bill me later

Name (Please print your full name)

Company

Address

City, State, Zip

Please allow 6 to 8 weeks for delivery of your first issue. Offer good in the U.S. only. Offer expires August 31, 1987.

4BD9

MACWORLD
The Macintosh™ Magazine

Order Now to Take Advantage of These Special Savings.

Call TOLL FREE: 800/524-3200

Visa and MasterCard Accepted!

SUBSCRIBE NOW

☐ **YES!** Please send me one year (12 monthly issues) of *Macworld* for only $24. I'll save $23.40 off the annual cover price of $47.40, a savings of almost 50%. (That's $6 off the regular subscription rate of $30.)

SAVE EVEN MORE!
☐ $37.90 for 2 years (24 monthly issues)

☐ Payment enclosed ☐ Bill me later

Name (Please print your full name)

Company

Address

City, State, Zip

Please allow 6 to 8 weeks for delivery of your first issue. Offer good in the U.S. only. Offer expires August 31, 1987.

4BD9

MACWORLD
The Macintosh™ Magazine

NO POSTAGE
NECESSARY
IF MAILED IN
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS PERMIT NO. 1262 BOULDER, CO

POSTAGE WILL BE PAID BY ADDRESSEE

Macworld
Subscription Department
P.O. Box 51666
Boulder, Colorado 80321-1666



NO POSTAGE
NECESSARY
IF MAILED IN
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS PERMIT NO. 1262 BOULDER, CO

POSTAGE WILL BE PAID BY ADDRESSEE

Macworld
Subscription Department
P.O. Box 51666
Boulder, Colorado 80321-1666



MACINTOSH SOFTWARE

THOUSANDS OF PUBLIC DOMAIN PROGRAMS AVAILABLE FROM OUR

ONLY $4.99

"INTERNATIONAL SOFTWARE LIBRARY"

Art Gallery

Animals (4169,4170)
Animal MacPaint pictures volume 1 and 2.
Nudes (4171,4172) Volume 1 and 2.
Apple Schematics (4100,4101)
Pinouts from Apple IIe,IIc & Macintosh™.
Nasa Schematics (4102) Detailed MacDraw sketches of Space Station, Pump, Thrusters...

Word Processing

Printer Utilities (4102) Wordstar to Macwrite. PageSetup (Create your own page sizes on your printer.)
Spellcheck (4104) A speller and extensive dictionary for Macwrite and textfiles.

Business

Business Programs (4106)
Office Manager (Accounts Receivable: prints ledgers, deletes inventory) Also included are Excel™ templates: Depreciation, Revenue.

Excellent Exchange™ templates

The following require MS Excel™ to run Included are great tutorials for learning to work with Macros.
Excel templates (4164)
Life Planner, About Excellent Exchange,Catalog, &Tip Sheet Database Macros, 1st. and 2nd. Mortgage, Time Weighted IRR, Roots of Euqations, Steam Volume, Triangles, Monthly Calendar, Truth in Lending, Lailing Label II, Tax Templates, Macro Function Tutor & Travel Expense Weekly.
Excel templates (4165)
1986 Calif. Payroll and Checkbook organizer with documentation. Also included: Programmer•Self, a programmer's/financial planner's calculator. This program will allow you print your steps onto your Imagewriter™.

(4167) dMAC III Demo & Examples
Relational Database program.

Telecommunications

Red Ryder 9.4 (4111) Latest update. It has an autodial feature and can store up to 80 telephone numbers. It also allows you to receive files automatically in any of 3 modes: ASCII, XMODEM, and KERMIT.
Red Ryder Macros (4090)
Contains Dow Jones™ & E. F. Hutton Quotes. Also contains a listing of area codes.
Termworks 1.2 (4112) Supports MacBinary & Macro capability for storing numbers & protocol settings. Also included are Freeterm 1.8, PackitIII and FModem.
Communication Utils (4107)
BinHex 5.0. Supports the new .BIN protocol, as well as the old .HEX, .HCX & .HQX protocols. PackIt III 1.2 (Compress your data for faster transmission), Compact, AppleTalk Chat and more.

Hacker Tools

H. Tools (4100) DrawPaint 1.0 (Convert MacDraw files to MacPaint.) TabUtil. (Text File processor: add or remove tabs.) Icon Exchanger, Icon Collector, Cleanup, Iconer & more.
H. Tools (4108) Patchdisk (Get into any sector of a disk and modify it!), PurgeIcons, Disk Test, Answering machine and more.
Programmer Utilities (4162)
Softools™
(Draw many standard software engineering drawings such as Dataflow diagrams, flowcharts etc.). Fast Eddie A powerful programmers' text editor. Includes documentation. Also included is MacroEdit.
Programmer Utilities (4163)
MemTest, MightFinder, FOBT Format, PRAM 2, Font -FKEY-DA sampler. (This very useful program will open any font, Desk Accessory or Function Key without having to install them onto the System. Also included: Cleanup, Mac ID, Hex & Ascii Strings.
Developer Stuff (4087)
ResDecompile. (A Macintosh application which can convert certain types of resources in a resource file, into source code suitable for compiling with ResEdit (Apple's Resource Editor).
Developer Stuff (4088)
Obi, Systems ID's, archiver & more.

Desk Accessories

Text Reader (4041)
MultiScrapbook, Icon Install, Auto log, and dCad Calculator.
Quick Print (4042)
MiniFinder D/A, HP 12C Calculator, Hacker D/A's, D/A Sampler, more.
Hacker D/A's (4044) Abacus, Timer, MemScan, NumCaps, Continuity, MacVision 1.1, Knockout windows.
Hacker Tools (4108) Patchdisk, Purge Icons, Disk Test, Answering Machine, and Fast Disk Copy.
Icon Maker 2.0 (4045) Design your own icons). QuickPrint (Print textfiles while working on other applications), Financial Calculator etc.
Function Key (4046)
Desk Accesory, Font/DA Mover 3.2, Fkey Installer, Fkey Sampler.
Rolodex, Disk (4047)
Info, Fun D/A's, Fkeys: Fonstie & Showkey.

Telecommunication DA's

MockPackage (4048) Use your modem concurrently while working on other programs. MockWrite, MockTerminal, MockPrint. Disk Info D/A's: Checksum, Utilities 2.0, Disk Info 1.42.

Communication Utilities (4107)
Binhex, Appletalk Chat, Cheese Hacker Pack II.

Graphics Desk Accesories

Artisto (4049) (Loads MacPaint files), Animator, Read Macwrite D/A, Function Key installer and sample function keys.

(4014) Big Ben (clock D/A), Calendar, & Text File Reader.

Disk Cataloger:

Disk Librarian (4098)
Excellent for cataloging extensive libraries. Just run the program & insert disks. Includes multiple sort functions.

Music

MacNifty (4124)
This disk contains realistic digitized sounds that may be altered by changing the sampling rate. Sounds included.
Musicworks™ songs (4122)
Includes Musicworks Demo which plays back songs. You can't write your own songs unless you have the commercial Musicworks. Songs included: "Invention #1", "Ballet de la Royne", "Born Free", "For Your Eyes Only", " Raiders of the Lost Ark", "The Gambler", "Jump" and many more.
Musicworks™ songs (4128)
Pop Music songs.
Concertware+™ Songs (4123)
A varied selection of classical as well as contemporary songs.

Midi Music Applications

These programs require a MIDI Keyboard.

Midi Synthesizer programs.

Midi Term (4117) Midi 2, Midi Mouse, 7th Heaven
CZedit Demo (4118) CZlibrarian (For use with the Casio CZ101™ Keyboard).

Educational

Flachcard (4138) Orbital Mixing & Grades folder.
Math Master (4139) Venn, Conformal Maps, Automata, Tree and Tangent.
Speech Synthesis (4140)
The following programs demonstrate Speech Sybthesis: Rona,Talking Eliza with demo files & instructions, Speak Easy and La Limerick Machine. (This one will read limericks that are typed .

Math Tutor (4181)
Weinberg. This program facilitates drawing math functions like integrals,summations etc. Equation, Math Drill & Camera tutorial.

Utility Programs

System Utilities (4182)
BootEdit (Alter the Welcome to Macintosh message),Change application font, Install (Install resources to your system that will RESUME your program after many system bombs), Window Changer (lets you customize the Save As & Open dialog boxes)
Disk Utilities (4183)
Disk Cat. Disk cataloging program. Disk Test, Display (text file reader), & Scavenger Mac (recover files).
Diagnostic Utilities (4184)
DiskTest, Speed Check, Ram Test 1.7, Dir-Acta-ry (Reads directory of a disk then converts it to an outline document for use with the Acta DA.), Remount HD20 (Remount an Apple HD20 that has been accidently thrown into the trash).

Updated Disks

Redit 1.2 (4185)
European Resource editor. This program is excellent for translating Macintosh programs to other languages. It does nor alter any of the resources.

Switcher 5.0.1 (4186)

Languages

Basic Compiler (4101) Complete with documentation and examples.
Smalltalk (4099) Disk also includes Ada and a 68000 disassembler.
Xlisp 1.4 (4037)
McAsm (4033) 68000 Assembler and Linker.

Engineering:

DesignScope (4119)
Simulation Program that helps design component Circuitry.(Demo Version)

Digital Simulator (4120)
Digital Logic Simulator.

The library contains the most current public domain software. It is updated daily and we are constantly expanding our selection. A free catalog is available upon request. We invite authors to send in new programs. For technical support, feel free to call our librarian-Luis Camberos.

Minimum order quantity on PD - 5 program disks

RIBBONS (MINIMUM 3):	
Apple Imagewriter, I,II,Prowriter	2.39
Apple Imagewriter Multicolor	11.99
3.5" DISKETTES (Minimun 30)	
ss/dd-Blue/Beige/Grey	1.39
ds/dd-Blue/Beige/Grey	1.59
ds/dd color pack (red,orange,yellow,green,blue)	1.69

THE "CARTAKERS" ™	
10 pack library case 3.5"	.99
40 disk storage case 3.5" w/lock	7.99
ACCESSORIES	
Drive head cleaning disk 3.5"	12.99
Printer stand	29.99

Lifetime warranty on Disks. Satisfaction guaranteed or your money refunded within 30 days. Disk packaged in 10's-Min. 30 disks. Checks (allow 10 days to clear), money orders, MC, Visa, AX, C.O.D. (add $1.90). P.O's accepted from qualified public institutions, gov'y agencies and well-rated companies, net 30. Ca. residents add 6%. For information and free catalog call (619) 942-9998.

800-992-1992 NATIONAL U.S/DISK, INC. 800-992-1993 CALIFORNIA

511-104 Encinitas Boulevard, Encinitas, California 92024 ■ Hours: Mon.-Sat. 6:00 am - 4:30 pm

Macworld Directory

The Macworld Directory is a comprehensive listing, by category, of products and services available for the Apple Macintosh. It provides advertisers with a low-cost advertising alternative and our readers with an easy reference guide.

FORMAT: The standard format includes a product ID, a 300-character descriptive ad, and a company name, address, and telephone number.

Advertisers may choose among categories already in use, or they may create their own. Display advertisers can cross-reference their current ad to the Macworld Directory for increased exposure.

RATES: Listings are accepted for a three-time consecutive insertion at a rate of $775. We offer a six-time insertion at $1320 that reflects a 15% frequency discount. Listings must be prepaid (except for established display advertisers) upon submission of ad copy. Checks, money orders, Visa, and MasterCard are accepted.

DEADLINE: For copy deadlines and further information please contact Niki Stranz, your Macworld Directory Account Manager, at 415/546-7722 or 800/435-7766 (800/435-7760 in California). Please send copy and prepayment to the Macworld Directory, 501 Second St. #600, San Francisco, CA 94107.

■ Accessories

○ Cables

Mac Lock/Mac Cables
Mac Lock, finest security kit for Mac/+, secures Mac, keyboard, mouse, 2nd drive, modem, & printer. Attractive red vinyl-covered steel 3/16" cables. Lock included. No tools req. $-back guarantee. Also, IBM, Apple, etc. $40. Mac Cables provide any length custom cables for Mac/+ (incl. keyboard) or almost any computer need. $20 & up.
Mac Products, 20231 San Gabriel Valley Dr., Walnut, CA 91789, 714/595-4838

○ Supplies

Laser Cartridge Recharge!
$$$Save a lot of money recharging laser-printer toner cartridges for Hewlett-Packard LaserJets, Canon, Apple LaserWriter, Corona, QMS. Recharged cartridges are reconditioned to work like new but last 20% longer. Money-back guarantee. Send $40 per cartridge plus $3 s/h. Monthly discounts.
Laser Systems, 7 North Main, P.O. Box 407, Kaysville, UT 84037, 801/544-3090

Letterhead Stationery
Enhance your professional mail image with Continuous Form Stationery. PerFORMS's use of new printing technology makes it easy for you to purchase only the amount of fine-quality letterhead & envelopes you need at low discount prices. Select a format or design your own. Call for info. & FREE catalog.
PerFORMS, P.O. Box 898, Gulfport, MS 39502, 800/922-8042

■ Artificial Intelligence

ExperTelligence
A full range of languages & Expert Systems Shells to meet your needs. From ExperCommonLisp™ to ExperProlog II™ incl. Le-Lisp,™ ExperLisp,™ & ExperLogo.™ ExperFACTS™ to ExperOPS5.™ ExperTelligence has a range of affordable solutions. The newest ExperCommonLisp is the first & only compiled, double-clickable, object-oriented, toolbox-compatible "Common Lisp." ExperProlog II is the int'l standard for Prolog.
ExperTelligence, Inc., 559 San Ysidro Rd., Santa Barbara, CA 93108, 805/969-7871

■ Expert Systems

ExperFACTS:™
A flexible expert-system-building tool. Written by Mc-Systems, ExperFACTS™ features backward and forward chaining, meta-level control, partitioning of knowledge base, and a software hook that runs any Lisp function, including graphics!
ExperTelligence, Inc., 559 San Ysidro Rd., Santa Barbara, CA 93108, 805/969-7871

ExperOPS5-Plus™
An ExperLisp™ implementation of the well-known OPS5 expert-system-building tool. It was implemented by Science Applications International Corporation. ExperOPS5™ teams up with ExperLisp™ and the Macintosh to deliver performance that rivals $30,000 to $50,000 Lisp machines.
ExperTelligence, Inc., 559 San Ysidro Rd., Santa Barbara, CA 93108, 805/969-7871

■ Hardware

○ Bar Code

Bar Code/MagCard Readers
The PC-380 Bar Code & PC-580 Magnetic Stripe (credit card) Readers have been designed to interface with the Apple Macintosh, are easily connected between the keyboard & the CPU, & require neither additional software nor an RS-232 port. A powerful but simple program for printing Code 39 bar codes is also avail. for both ImageWriter & LaserWriter.
TPS Electronics, 4047 Transport St., Palo Alto, CA 94303, 415/856-6833

○ Memory Upgrade

Memory Enhancements
Upgrade your Mac to 512K, 1024K, or 2048K of contiguous memory. SCSI port & fans available. Factory flow-solder techniques used for high reliability. 120-day warranty. Local 20-minute installation or mail order. Dealer inquiries welcome. Call for pricing and information.
Ehman Engineering, 115 Apache Dr., Evanston, WY 82930, 800/257-1666

○ Networking

PhoneNET Connector
AppleTalk-compatible network connector can use existing telephone components and wire to create permanent, reliable 3000-foot AppleTalk networks. Also available: 12-port packet repeater StarController™, Repeater, adapters for Apple, IBM, & DEC wiring, & TrafficReporter™ network management software.
Farallon Computing, 1442A Walnut #64, Berkeley, CA 94709, 415/849-2331

○ Video

MacMonitors/Projectors
• 17- & 23-inch hi-res monochrome monitors w/ antiglare, white phosphor, vari scan. When your Mac must be seen in the classroom, trade show, office, etc. Only $1095 & $1295.
• Projector systems for the ultimate in Mac viewing pleasure from $3895.
• Rental MacMonitors & Projectors avail. • Dealer inquiries welcome.
National Data Systems, 2419 Rutland Dr., Austin, TX 78758, 512/837-1760, 800/531-5143, 800/252-8286 in Texas

Mentauris Corp.
Specialists in Macintosh video interfacing for over two years. Mentauris offers a wide range of products to satisfy any Mac or Mac Plus video interfacing need: our original, high-res Composite Video Adapter; our new, "no-drill" CVA; monochrome and color NTSC scan converters. Call for price quotes and information.
Mentauris Corp., P.O. Box 1467, San Marcos, TX 78666, 512/396-1565

■ *Insurance*

Safeware
Insure your computer. Safeware provides full replacement of hardware, media, and purchased software. As little as $39 a year provides comprehensive coverage. With our blanket coverage, no lists of equipment are needed. One phone call does it all! Call 8 a.m. to 8 p.m. EST (Sat. 9 to 5).
Safeware, The Insurance Agency Inc., 2929 N. High St., P.O. Box 02211, Columbus, OH 43202, 800/848-3469 (national), 614/262-0559 in Ohio

Data Security Insurance
The "all risk" Personal Computer Policy from DSI includes essential coverage not available with other policies: protection against loss of data (even from accidental erasure), loss of custom programs, and fraud. Especially intended for business computers. Coverage can be bound by telephone, 9 a.m. to 4 p.m. mountain time.
Data Security Insurance, 4800 Riverbend Rd., P.O. Box 9003, Boulder, CO 80301, 303/442-0900, 800/822-0901

■ *Services*

○ *Data Conversion*

Electronic Data Conversion
Conveniently translate data files from mainframes, minis, dedicated word processors, typesetters, & PCs (word processing embedded codes, database structures & spreadsheet reports & formulas) to Mac or almost any system. Ultimate technology. Nation's leading firms use our invaluable services!
CompuData Translators, Inc., 6565 Sunset Blvd. #301, Hollywood, CA 90028, 213/462-6222

Tape/Disk Conversions
Conversion services for your Macintosh, to or from over 800 computer systems:
- Mag tapes
- Microcomputers
- Word Processors
- Typesetters

Our conversion capabilities include to or from 3½-inch, 5¼-inch, and 8-inch disks & mag tapes.
Pivar Computing Services, Inc., 165 Arlington Heights Rd., Dept MC, Buffalo Grove, AL 60089, 312/459-6010

○ *Desktop Publishing*

MacTypeNet™
Mac/PC typesetting. Disk or modem. 300-dot LaserWriter™ output; 635-, 1270-, or 2540-line Linotype™ L300P output. Composition, page makeup, printing/bindery services. Hardware/software sales, services, and support; beginning and advanced training and seminars for Macintosh, PC, and Linotype 100/300 users.
MacTypeNet™, P.O. Box 52188, Livonia, MI 48152-0188, 313/477-2733

Laser Print • Disk Conv.
Laser-perfect printouts from your Mac, Apple II, IBM, etc. Send us your text and graphics on disk or by modem. 24-hr. turnaround in most cases. Disk conversions, hardware & software sales, services & support. Mailing list maintenance, full offset printing and laminating also available. All services at surprisingly low cost!
DaVinci Business Services, 6175 N.W. 57th St. #213, Fort Lauderdale, FL 33319, 305/721-0216

Laser Printing Services
LaserWriter (300-dpi)/Linotype L100 (1270-dpi) output of your Mac/IBM files. Disk or modem. $6 per page ($3.50 volume discount). Desktop publishing specialists in consulting & design services. Hardware/software sales. Xerox Ventura Publisher for sale at low, low price. Ask for our free desktop publishing guide.
Laser Printing Services, 26058 W. 12-Mile Rd., Southfield, MI 48034, 313/356-1004 (MI), 800/722-3475 (nat'l)

○ *Graphics/Printing*

NYC/NJ/PA/DEL Designers!
Desktop publishing doesn't have to look cheap! IBM or Mac files, disk or 24-hr. modem, for high-resolution L300 output through award-winning color printing, binding, & mailing. Impartial system advice, in-depth training, & support for major DTP pkgs. + PostScript itself. Messenger service! Ask for K. Downs.
Waldman Graphics, 9100 Pennsauken Hwy., Pennsauken, NJ 08110, 212/925-2420, 215/627-7200, 201/552-8778, 609/662-9111

○ *Photoplotting*

PC Photoplotting Service
Printed Circuit Photoplotting Service for Vamp/McCAD and Bishop. Graphics Quick Circuits users. Next-day turnaround is standard. Able to drive photoplotter with Macintosh floppy. Modem available. Quick Circuits Gerber Translator. Pricing by film size. CAD design service and fabrication also avail.
Design Express, Inc., 80 S. Lake Ave. #820, Pasadena, CA 91101, 213/681-0304

○ *Publishing/ Communication*

Office Link™
Mac/IBM compatible Linotronic typesetting via disk or modem. Tech support for Apple, Aldus, Microsoft, etc. Text/graphics capabilities & error-free transmission (local access # avail.). Provides newsletter design layouts, electronic mail, graphics library, custom data bases, & more. Office Link™ delivers a total solution to meet your company's publishing & communication needs. Easiest to use communication software or $-back.
Office Link, 345 Montgomery Ave., Bala Cynwyd, PA 19004, 800/345-0133

○ *Typesetting*

Command Typographer®
MAC TYPOGRAPHY. Macintosh/*Quality* Typesetting. *Command Typographer®* features were on minis & mains. *Sophisticated* multipass H&J provides kerning, formats, tabs, vertical justification, micro justification, automatic leader, letter spacing. $495. Save $, copy disk/modem, high-res. typesetting/24 hrs. Typesetting avail.
Regional Typographers/The Software Shop, 229 Bedford Ave., Bellmore, New York 11710, 516/785-4422

■ *Software*

○ *Accounting*

BPI General Accounting
A complete accounting system that includes automatic double-entry accounting & check writing, three subsidiary ledgers, six specialized journals, financial reports, default options, a "select" menu, the ability to export accounting data to productivity tools using the *BPI Productivity Connection.*
BPI Systems, Inc., 3001 Bee Cave Rd., Austin, TX 78746, 800/531-5252

Payroll-General Ledger

CheckMark PAYROLL and AMS GENERAL LEDGER are full-featured accounting programs for $195 each. PAYROLL calculates all employer and employee taxes. Prints checks and W-2s. User-modifiable tax tables. GENERAL LEDGER has extensive reporting capabilities. Profit centers, budgeting, previous-year balances.
CheckMark Software, Inc., P.O. Box 860, Fort Collins, CO 80522, 800/426-2466 ext. 338

○ *Apple Emulator*

II in a Mac™ Version 2.0

BELIEVE IT . . . a complete working Apple II computer inside a Mac.
- Run Apple II + /e/c software without modification!
- Convert Apple II-data into Macintosh data & vice versa.
- Develop Apple II software using integer/Applesoft BASIC or ML.

II in a Mac supports hard disks, DA's, Switcher™, & UniDisk. Avail. NOW! Only $89.95.
Computer:applications Inc., 12813 Lindley Dr., Raleigh, NC 27614, 919/846-1411

○ *Architecture*

MacPerspective™

Allows architects, draftspeople, and artists to rapidly construct perspective drawings of houses, buildings, or other objects. Viewpoint can easily be changed. Drawings can be printed in any size up to 100 inches. Easy to learn and use. Fast, professional program with many features, thorough manual. $149.
B. Knick Drafting, 313 Marlin Pl., Melbourne Beach, FL 32951, 305/727-8071

Perspective Drawing

GridMaker™: persective grid construction set. Create a variety of 3-dimensional grids that can be used within *MacDraw* or *MacDraft* as a guide for perspective drawing. Grid shape, dimensions, line density, rotation, and perspective are independently controlled. *Switcher* compatible $49. Visa/MC.
Folkstone Design Inc., P.O. Box 86982, N. Vancouver, B.C., Canada V7L 4P6, 604/986-8060

MacArchitrion™

Helps architects and draftspeople in all steps of the design process. The different interactive functions may be classified into 3 fields: • 3-D CAD volumic (perspective, axonometries, cross sections), • 2-D (front views, plans), and instant calculation of areas and columns. All files are saved in *MacDraft*'s or *Architrion*'s 2-D format.
Digicalc Informatique, 425 De-Maisonneuve W. #030, Montreal, P.Q., Canada H2A 3G5, 514/288-9167

○ *Backup/Restore*

HFS Backup™

Back up (archive) data from your hard disk. Back up/restore the entire disk, selective files, or changes only. Includes/excludes files based on name, class, or data modified. Creates backup templates, saves/prints file list (hierarchically by folder or alphabetically by file). $49.95. MC/Visa or at your dealer.
Personal Computer Peripherals Corp., 6204 Benjamin Rd., Tampa, FL 33634, 813/884-3092, 800/622-2888

BRUtility™

The Millennium Backup and Restore Utility
- Easy to use, like the Finder
- Neat graphics!
- Copy, backup, or restore
- Bulk erase & copy
- Graceful shutdown
- Files not scrambled or archived
- Runs faster than the rest

Req. Mac Plus or 512K. All files, selected, or modified. *Intro. offer: $59.95. Incl. 10 double-sided disks!*
Millennium Computer Corp., P.O. Box 20010, Rochester, NY 14602-0010, 716/436-2952

MacLibrarian-HFS

This no-nonsense HFS-compatible backup utility is powerful and easy to use. *MacLibrarian* backs up, catalogs, & restores valuable disks, folders, & files.
- Backs up any size folder or file
- Saves time and reduces the risk of losing valuable data
- One 400K disk inventories 4900 files & backups
- Only $79.95

Crystal Canyon Computing, Inc., P.O. Box 7161, Las Cruces, NM 88006, 505/522-6176

○ *Billing*

Invoicing/Job Costing

Office Productivity System™ (OPS). For professionals that bill based on time-use. Includes invoicing, time-keeping/productivity reports, job budget/cost tracking, client database with mail merge and accounts receivable. Multiuser capable. 512K Mac with hard or external drive. Avail now for $475.
Applied Micronetics, 3 Burnt Oak Circle, Lafayette, CA 94549, 415/283-4498

○ *Communications*

Tekalike

A VT-100 & Tektronix terminal emulator for text & graphics; emulates text terminals (tty, VT-100, VT-640, Tektronix 4105) &/or graphics terminals (Tektronix 4006, 4010, 4012, 4014, 4016, 4105, & the VT-640). Compatible with screen editors. Supports LaserWriter, plotters, *MacDraw* & *MacPaint* output; desktop publishing compatible. $250.
Mesa Graphics, P.O. Box 600, Los Alamos, NM 87544, 505/672-1998

Mac2624: HP Terminal Emulator

Lets your Mac emulate the HP2624, HP2392, and HP2394, reliably running all HP3000 software. Implements HP modes, parameters, keyboard features, and display characteristics within the Mac's mouse/menu/⌘-key environment. Ultrafast file transfer (with text and graphics conversion options) included.
Tymlabs Corp., 211 E. Seventh St., Austin, TX 78701, 512/478-0611, Telex 755820

○ *Desktop Publishing*

DrawArt™

A library of "publishing quality" graphics in *MacDraw* files. More than 150 images in the categories of Publishing, Clip Art, 3-D/CAD, Drafting, Cartoons, & Drawings. *DrawArt*™ is "Smart-Art." Customize sizes, scales, patterns, borders & still retain image quality using ImageWriter or LaserWriter. Req. *MacDraw* & 512K. Order from us. List: $49.95. Visa/MC.
Desktop Graphics, 400 Country Dr., Ste. H, Dover, DE 19901, 302/736-9098

Set & Send

Mac-to-Compugraphic MCS provides substantial savings in time & money to the desktop publisher. Features: text & headline kerning, word & letter spacing, automatic hyphenation, point-size options from 4- to 127-pt. in ½-pt. increments, leading in ¼-pt. Over 1300 fonts avail. Set & Send automatically generates codes & provides resolution output at 2600 pixels per inch.
Bree Communications Inc., 661 D Market Hill Rd. Vancouver, B.C., Canada V5Z 4B5, 604/875-1622

○ *Educational*

Gradebook/Test Generator

MICROGRADE—flexible course & grading, 350 students and 100 assignments per class, prints stats & various reports. Ideal for any grade level. MICROTEST II—create, update, generate, & store exam materials. Easy question entry, large database, multiple test versions. Free brochures—$5 Demos.
Chariot Software Group, 3659 India St. #MD1, San Diego, CA 92103

Religious & Graphics Series

- *Scripture Bits* (Bible calendar) $22

MacConcord (N.T. concordance) $42.95
MacScripture (Old & N.T.) $140
- *Religious Art Portfolio* $24.95
- *Electro Bits* (circuit graphics) $24.95
- *Orlando à la Carte!* (dining guide) $19.95 *MacMundo* (newsletter disk in Spanish) $8
- English or Spanish

Medina Software, Inc., 2008 Las Palmas Circle, Orlando, FL 32822, 305/281-1557

MacANATOMY

A complete electronic atlas of human anatomy in *MacPaint* document form. The drawings may be modified and merged into *MacWrite* documents using the Clipboard. Comprised of four volumes, available singly or as a collection.
MacMedic Publications, Inc., 5805 Westheimer, Houston, TX 77057, 713/977-2655

measureUP™ Testing

measureUP is the first test-generation system to fully utilize the Mac's powerful desktop publishing capabilities. Combining graphics, word processing, and database management, measureUP enables you to produce better tests more easily than ever—*we guarantee it!* Call today for the best in testing!
Logic eXtension Resources, 9651 Business Center Dr., Ste. C, Rancho Cucamonga, CA 91730, 714/980-0046

Brainchild Gradebook™

Unique graphic interface, like paper grade book, extremely easy to use. Total integration of spreadsheet, database, & report-generating software. Free-form class structure, enormous capacity, & speed! Complete stats & graph program. Intricately detailed user's manual. Value-priced at $25. No other program comes close!
Brainchild Corp., avail. thru the Kinko's Academic Courseware Exchange. To order, call 800/235-6919, 800/292-6640 in California

Need help studying?

Learning Tool™ is designed to help you study. *Learning Tool* uses the principles of cognitive psychology to help you learn any subject, from philosophy to engineering. *Learning Tool* is an electronic notebook that helps you organize class notes, study for exams, write term papers, and more. 512K, $50, MC/Visa.
Arborworks, Inc., 2540 Pittsfield Blvd., Ann Arbor, MI 48104, 313/973-0612

○ *Engineering*

Digital Logic Design Aid

LogiWorks is an interactive digital logic drawing and simulation package for the Macintosh. Features:
- built-in library of common gates, flip-flops, etc.
- user-defined devices, PROMs and PLAs
- adjustable device delays
- 3-state and open-collector devices
- produces timing diagram of selected signals
- $159.95 (U.S.)
- Package including 7400, analog libraries, and net list utility $199.95

Capilano Computing, 300-1120 Hamilton St., Vancouver, B.C., Canada, V6B 252 604/669-6343

Structural

Analysis & design programs. Any # of nodes, elements, loads. Structure, load, tension, shear, moment & deflected shape diagrams, in & out text, section table, more. Full mac interface. FRAME-MAC (2-D frames) $495; BEAMAC II (continuous beams) $295; BEAMAC (simple beams) $95. $-back guarantee. Free support.
Erez Anzel, 5800 Arlington Ave. #5T, Riverdale, NY 10471, 212/884-5798

Finite Element Analysis

MSC/pal for 3-D static & dynamic analysis of structures comprised of beams, plates, & scalar elements, with concentrated, gravity, and pressure loads. 3-D graphics include undeformed/deformed overlays, deformed animation, and XY plots. Executable demo with full doc. $45. See our ad in Dec. '86 *Macworld.*
The MacNeal-Schwendler Corporation, 815 Colorado Blvd., Los Angeles, CA 90041, 213/259-3888

○ *Engineering/Process*

Engineer's Aide

- Pipeline/ductwork sizing
- Pump/fan/compressor sizing
- Heat exchanger sizing
- Orifice/control valve sizing
- Project financial analysis
- Conversion calculator
- Specification writer

Pull-down menus, pop-up help window, single-screen entry & results—all for $395 (intro. price—money-back guarantee). Advanced user interface.
Engineering Programming Concepts, P.O. Box 925, Camarillo, CA 93011, 805/484-5381 in California, 800/367-3585 (Nat'l)

○ *File Server*

Macserver—CPM file server

Finding your CPM machine used as an electronic doorstop now that the Macintosh has stolen the show? Searching for an inexpensive AppleTalk network file server? Macserver supports multiple MFS/HFS volumes, *Wordstar/MacWrite* translation, & file sharing. Sooner or later you're going to have to serve somebody. For CPM systems, the time is now, & that someone is the Mac!
Software Resources, P.O. Box 1748, Dahlgren, VA 22448, 703/663-3589 or 703/373-2200

○ *File Conversion*

File Conversion

File Converter (V.2) is a fast file-conversion program for the Mac. It does search and replace operations on text files up to 400K on a Mac Plus in 20 sec. It changes spaces to tabs for *Excel,* adds/deletes tabs, carriage returns, line feeds, or spaces as well as printable characters. $24.95.
Phillips Software, 1633 Commonwealth Ave., West Newton, MA 02165, 617/332-1373

○ *Financial*

MacMoney™

Gain control of your finances with this record keeper & financial planner designed for the Macintosh™ with your needs in mind. Easy transaction entry. Print checks, multiple reports, & graphs. Transfer data to a text file for extra benefits from *Excel*™ or other programs. Introductory price $74.95 + s/h. Req. 512K.
Survivor Software Ltd./w, 11222 La Cienega Blvd. #450, Inglewood, CA 90304, 213/410-9527

Financial Decisions

GenMicronics, a leader in financial analysis software, has introduced a powerful package for Excel™ owners, which is a must acquisition for all in commercial, consumer, real estate, and mortgage banking, including lenders, borrowers, & investors. Complex decisions resolved. Requires Excel.™ Best buy at $45.
GenMicronics, 5900 Shore Blvd. #401, St. Petersburg, FL 33707, 813/345-5020

Profit Stalker II

Are you a Macintosh investor? Then you need to track the market. Here's what others say about this program. "Well worth the wait . . . I would not delay purchasing this program." "Nothing less than awesome." "I love it!" A myriad of technical tools as easy to use as your Macintosh. $250 + $3 postage. CA residents add 6% tax. Call or write for free info.
Button-down Software, P.O. Box 19493, San Diego, CA 92119, 619/463-7474

○ *Fonts*

Downloadable Laser Fonts

Specialized fonts for the LaserWriter. Classical Greek $85. Serif/sans serif for scientific texts $75. Font of 100 chemical structures $125 (with scientific text fonts $160). Polish serif or sans serif $85 each (4 styles). Serif small caps $40. Regular or Polish (4 styles). Soon: modern Greek. MC/Visa. As mentioned in July '86 issue.
Allotype Typographics, 1600 Packard Rd. #5, Ann Arbor, MI 48104, 313/663-1989

LaserPerfect™ Fonts

We want fine typography for the Mac. Our downloadable fonts were designed especially for LaserWriter/Linotronic printers & put others to shame: good fit, kerned letters, old-style numerals, thin/em space, MacSlab (square serif) & MacSans (sans serif), with ital, bold, bold ital $95. LaserHebrew $145. Next: Devangari, Bembo, OCR-A. Custom characters/fonts.
Neoscribe International, P.O. Box 633-MD, East Haven, CT 06512, 203/467-9880

FONTgenix & LASERgenix

FONTgenix:™ Four volumes of dot-matrix display fonts $29.50 each volume (all four $99.50). FOREIGN FONTS EDITION:™ 22 foreign-language fonts on disk, only $49.50. LASERgenix:™ Downloadable LaserPrinter fonts only $32.50 each (add $3 s/h, CA res. add 6%). Write for samples or order at:
Devonian International Software, P.O. Box 2351, Montclair, CA 91763, 714/621-0973

○ *Genealogy*

MacGene™

Ideal for beginners and advanced users, the program was designed specifically for the Macintosh. One menu bar gives you complete control over data entry, search, select, list, and chart. Displays include Descendant, Pedigree, Family Group, Birthday, Surname. Supports user-defined fields, tailored reporting, linked files, etc. Exchange data w/ genealogist across town or across the world. Compatible w/ *MacWrite, Microsoft File,* etc. $145.
Applied Ideas, Inc., P.O. Box 3225, Manhattan Beach, CA 90266, 213/546-6461

○ *Graphics*

MAC-ART LIBRARY

Illustrate your ideas w/ *MAC-ART LIBRARY!* 12 disks of professional *MacPaint* images:
- Animals
- Farm Life
- Geography
- Kitchen
- Sports
- Tools
- Buildings
- Flowers/Trees/Plants
- Greeting Cards
- People
- Transportation
- Signs/Symbols/Borders

Sgl. disks $39.95. Full library $250. Sampler $49.95. $3 s/h. Other disks.
CompuCRAFT, P.O. Box 3155, Englewood, CO 80155, 303/850-7472

MGMStation

by Micro CAD/CAM, Inc., is a high-powered, easy-to-use CAD program for the Mac, similar in performance to *AutoCAD* for the IBM PC. *MGMStation* boasts over 140 powerful functions, including XY coordinate, polar, or digital data input; 100× zoom; accuracy to 4 decimals; & much more! Demo disk &/or VCR tape available. $799.
CompServCo., 800 Freedom Ln., Slidell, LA 70458, 800/272-5533, 504/649-0484

MacPlot & MacCAD

MacPlot by Microspot is a powerful plotter driver that will plot any object-oriented graphics produced on the Mac in up to 30 colors/pens. Supports over 45 plotters. MacCAD is a series of 12 separate architectural & engineering template libraries for use with either *MacDraw* or *MacDraft* (specify which).
CompServCo., 800 Freedom Ln., Slidell, LA 70458, 800/272-5533, 504/649-0484

Image Measurements

Caliber™ is the high-powered program you need to accurately measure area, length, angle, slope, velocity, form, center of gravity, etc. Fast entry with tablet or mouse. 20 data channels each with statistics and graphics windows. *Caliber*™ counts, rescales, sorts, and merges. Imports and exports graphics and data. Intro. offer $250 MC/Visa. Demo avail. $10.
Caliber Systems, 60 Manor St., Hamden, CT 06517, 203/281-7621

MiniCAD 2D/3D

The only CAD system developed exclusively for the Mac. Works like a Mac CAD system should. Don't be satisfied by a PC port. Nine decimal-place precision, 40 color layers, symbol library, *MacDraw* & Clipboard compatibility, 8 line types, & lots more! Even if you never use 3-D, MiniCAD is still your best buy for the Mac. Satisfaction or your money back. $395. Demo avail.
Diehl Graphsoft Inc., 3246-K Normandy Woods Dr., Ellicott City, MD 21043, 301/461-9488

○ *Integrated*

WorksPlus™ Spell

If you use *Microsoft Works*, you'll love *WorksPlus*™ *Spell*. It's fully integrated with *Works* and it's blindingly fast. It checks spelling at over a page a second using a 70,000-word modifiable dictionary. Includes automatic hyphenation and a glossary feature. $59.95 plus $3 s/h.
Lundeen & Associates, P.O. Box 30038, Oakland, CA 94604, 800/-233-6851, 800/922-PLUS (CA)

○ *Languages*

Multitasking for the Mac

MACH2, a multitasking FORTH83 development system, in THE language for interactive Mac programming: COMPLETE toolbox access, integrated assembler (MDS-format)/debugger/disassembler/text editor, FAST execution, creates stand-alone applications, 500-pg. manual. Booth #940 at the Expo. $99.95 (+CA tax) Visa/MC.
The Palo Alto Shipping Co., P.O. Box 7430, Menlo Park, CA 94026, 415/854-7994

Lisp Development System

MacScheme+Toolsmith™ lets you program the Mac interactively in Lisp: Complete access to Toolbox traps, multitasking, high-level window & menu managers, interrupt-driven event handlers (no more polling!). Includes *MacScheme*™ Lisp system. 1M RAM recommended. Introductory price $250.
Semantic Microsystems, 4470 S.W. Hall St. #340, Beaverton, OR 97005, 503/643-4539

Solve your Lisp Problem!

ExperCommonLisp™ for development: the first & only double-clickable, object-oriented, toolbox-compatible, "CommonLisp." Le-Lisp™ for portability: Interpreted, compiled, a truly portable Lisp that runs on the Mac, IBM PC, DEC, VAX, SUN, and Apollo. ExperLisp™ for education: easy to learn, fun to use, Lisp compiler w/3-D graphics. University site licenses avail.
ExperTelligence, Inc., 559 San Ysidro Rd., Santa Barbara, CA 93108, 805/969-7871

ExperPrologII™

We call it the "Real Thing." It's the original implementation of the Prolog II developed by Alain Colmerauer, inventor of the Prolog language. Execute, trace, & interactively modify Prolog II programs. The only Prolog with the powerful control of DIF & FREEZE. Other features incl. the ability to manipulate fact & rule unification process.
ExperTelligence, Inc., 559 San Ysidro Rd., Santa Barbara, CA 93108, 805/969-7871

○ *Mathematics*

PowerMath

Solves problems from simple algebra to complicated calculus expressions. You can differentiate, integrate, plot polynomial expressions, manipulate matrices, solve simultaneous equations, and create custom functions. If you are a student, engineer, or work with math, you'll love the easy-to-use versatility. Retail $100.
Central Products Corp., 221 Norfolk #518, Houston, TX 77098, 713/529-1080

○ *Medical*

Medical & Dental Mgmt.

Solo or multipractitioner office includes patient (responsible party) billing, recall, paper/electronic claims, aging, collections, SuperBill, labels, diagnostic history, *Word/MacWrite*, audit & productivity reports. 24-hr. support. 512K+ hard disk or XL. *Mac Office*. Demo from $100. AMEX/Visa/MC. 2,400+ dealers.
CMA Micro Computer, 55888 Yucca Trail, P.O. Box 2080, Yucca Valley, CA 92286-2080, 619/365-9718

○ *Payroll*

Time Saver Payroll V.3.0™

COMPLETE FULL-FEATURED Payroll System
• *Calculates* • *Accumulates* • *Prints reports* • Salaried, hourly, & comm. wages • 10 deductions, incl. fed. & state taxes • Tax tables easily edited by user • Monthly & quarterly reports, incl. 941, FUTA/940 • Prints checks and W-2 forms • *Flexible—easy to use!* Req. *Excel* $75 + $3 s/h. MC/Visa/Chk. Demo $10 + $3 s/h.
Western Software Associates, 110 El Dorado Rd., Walnut Creek, CA 94595, 415/935-3673

○ *Plotter Drivers*

Plot-It

Plots *MacDraw, MacDraft, MacProject, MacPaint*, etc., on popular Apple, Hewlett-Packard, or Houston Instrument pen plotters in sizes A, B, C, D, & E. Use for accurate engineering & architectural drawings or color data plots. Flexible color interface & scaling. $125. See review in Sept. '86 *Macworld*.
Mesa Graphics, P.O. Box 600, Los Alamos, NM 87544, 505/672-1998

○ *Printer Drivers*

Mac Palette

By Microspot, prints pictures & text in color from within most Mac software, using the ImageWriter II. It may be accessed using the Choose Printer & Print commands. It supports *MacDraw, MacDraft, MacWrite, Word, Excel, PageMaker, Jazz, Chart, MacProject* (not bitmapped graphics, e.g., *MacPaint*). $69.
CompServCo., 800 Freedom Ln., Slidell, LA 70458, 800/272-5533, 504/649-0484

The Print-Link™

A printer driver program, complete w/cable, that works with dot matrix, daisy wheel, & ink jet printers for the Mac. Mfr's supported are Apple, Brother, C. Itoh, Citizen, Comrex, Diablo, Dynax, Epson, Infoscribe, Juki, Okidata, Panasonic, Qume, Siemens, & more. $84.95.
GDT Softworks Inc., P.O Box 1865, Point Roberts, WA 98281-1865, 604/291-9121, 800/663-MACC (6222)

○ *Programming Tools*

Programmer's Extender™

Compiled libraries speed up Macintosh application development. Vol 1: windows, menus, text edit, scroll bars, dialogs. Vol 2: list mgr. support, text & graphics printing & I/O, marquee, lasso, zooming, & tiling windows. Avail. for *LightspeedC, TML Pascal, & Lightspeed Pascal*. $89.95/volume.
Invention Software Corp., P.O. Box 3168, Ann Arbor, MI 48106, 313/996-8108

Communication Extender™

Compiled library provides high-level access to communications. Routines for serial-port initialization & mgmt., error-free transfer protocols, reporting of time data, generic & DEC terminal emulation, & more. Avail. for *LightspeedC, Aztec C, TML Pascal, & Lightspeed Pascal*. $99.95.
Invention Software Corp., P.O. Box 3168, Ann Arbor, MI 48106, 313/996-8108

○ *Public Domain*

Mac software from $3.50

The best, most complete public domain & shareware collection available, with over 220 disks. Everything from business programs to games and DAs. We offer the best after-the-sale service, with toll-free order lines, overnight & second-day delivery, technical support hot line. Send $1 for 80-pg. catalog.
Educomp, 2431 Oxford St., Cardiff, CA 92007, 619/942-3838

2000+Pgrms • Tips • News

No club has more programs or a better newsletter. Members in 31 countries. One-time $20 subscription gets you our intro. disk w/10 terrific programs + a description of our HUGE library of over 2000 programs, PLUS our quarterly newsletter filled w/tips and new programs. Members pay $9 for any disk (plus $1 s/h).

PD Mac, Dept. 12, P.O. Box 5626, Sherman Oaks, CA 91423

PD Software Club

We have the best in proven updated PD software. We scour all the national and local sources for you. Our 50 disks contain only current versions of over 1000 items. $2 gets you our catalog & a $2 coupon. $20 annual membership fee gets you monthly newsletters and 2 FREE disks of fonts and DAs. Monthly disks $6.95, library disks $8.95. Visa/MC.
Translatum International, 1730 E. Oltorf St. #127, Austin, TX 78741, 512/442-0266

Public Domain Disks $3

200+ disks of PD/SW. 18 categories to choose from. $3 copying charge/disk, free/quick shipment, no club fees, every sixth disk free. EVERY program in our catalog will boot. Each program, not just each disk, is fully described. For a catalog send $1.75 or a formatted disk with a long S.A.S.E.
CHA Computer Services, Inc., Dept. B, Post Office Box 622, Lincoln, MA 01773, 617/891-1981

○ *Real Estate*

Property Management

Comprehensive program for managing residential and commercial properties. Many management reports, including operating statement, delinquent rent, lease expiration, and transaction register. Provides check writing, check reconciliation, posting late fees, recurring expenses –$395. Investment analysis–$245.
Yardi Systems, 3324 State St., Ste. O, Santa Barbara, CA 93105, 805/687-4245

Investment Analysis

From RealData, the leader in real estate software. Latest tax rules included in this powerful sensitivity analysis for income property. Ten-year pro forma of cash flows, financing, resale, tax consequences, IRR/FMRR, and more. Flexible and easy to use. Requires *Multiplan*™, *Jazz*™, or *Excel*™. $195.
RealData, Inc., 78 N. Main St., South Norwalk, CT 06854, 203/255-2732

The Appraiser's Office

State-of-the-art program developed by professional appraisers, just for the Mac. Completes the FNMA 1004 Residential Form quickly and accurately. Menu-driven; on-screen form; performs all calculations. Stores, searches, retrieves, and pastes comps to/from database. Office management function. FREE URAR upgrade. Requires *Excel*. $395.
RealData Inc., 78 N. Main St., South Norwalk, CT 06854, 203/255-2732

More Real Estate Tools . . .

From RealData, the leader in real estate software. Products for investors, commercial and residential developers, syndicators, mortgage lenders, brokers, and closing attorneys. Programs for the Macintosh and the IBM PC available for immediate delivery. AMEX, Visa, MasterCard welcome.
RealData, Inc., 78 N. Main St., South Norwalk, CT 06854, 203/255-2732

ProAnalysis

A comprehensive real estate analysis program written specifically to incorporate the Macintosh's easy-to-use features. Facilitates property selection, refinancing decisions, & tax planning. Full modeling capabilities, sensitivity analysis, IRR, help features, clear format. $295. Brochure available.
Technalysis Services, 14555 DeBell Rd., Los Altos Hills, CA 94022, 415/949-4176

○ *Scientific*

Tools for Scientists

Two low-priced products that enhance the usefulness of your Mac. Our *Scientific Symbols Fonts* disk contains all the characters in IBM's Selectric™ symbols ball and more for $40. The *Spectral Analysis* package provides four basic functions: forward and inverse transform, power spectrum, and autocorrelation for $75.
Renaissance Software Systems, P.O. Box 27276, Austin, TX 78755-1276, 512/338-1250

○ *Security*

Advanced Copy Protection

The leading software manufacturers depend on Softguard copy protection. Introducing our *Protection Kit*, a complete copy protection system that runs on the Macintosh.
- Stops all copybusters
- FULL HARD DISK support
- No source code changes
- Compatible with all Macintosh systems. Free demo disk.

Softguard Systems, Inc., 2840 San Tomas Expwy. #201, Santa Clara, CA 95051, 408/970-9240

○ *Spelling Checkers*

MacGAS™

The top-rated spell-checker w/ glossary & thesaurus.
- Works on-line w/ *MacWrite, Word, Jazz*, and others.
- 30,000- & 80,000-word dictionaries.
- Automatically replaces misspelled words, preserving font style.
- 5,000 synonyms & antonyms.

"This is easily the best thesaurus we have seen yet."–Oct. *MacUser*. "MacGAS is fast, straightforward, & easy to use . . . outstanding glossary."–July *Macworld*.
EnterSet, 410 Townsend, San Francisco, CA 94107, 415/543-7644 or 800/621-0351 ext. 305

○ *Statistics*

CLR ANOVA

Analysis of variance program that can compute up to a 10-way design with repeated measures and unequal *n*. Marginal means, plots of interactions, simple effects, range tests, contrasts, and more. Full Mac interface. Two data editors provided. Can read text files w/entries separated by spaces, commas, or tabs. $75 + $3 s/h.
Clear Lake Research, 5615 Morningside #127, Houston, TX 77005, 800/835-2246 ext. 199, 800/362-2421 ext. 199 in Kansas

○ *Stock Market*

Portfolio/Market Link

- *Stock Portfolio System*, a complete portfolio manager, incl. 9 reports, tie to Dow Jones or manual update. Handles diversified investments.
- *Market Link*, auto fetch up to 120 quotes up to 8 times in unattended mode. Tie to DJ or Source. Bridge quotes to *Excel*.

Free brochure + 100% rebate offer.
Smith Micro Software, Inc., P.O. Box 7137, Huntington Beach, CA 92615, 714/964-0412

○ *Utilities*

Copy II Mac

Backs up nearly all protected software quickly, easily! Includes Copy II Hard Disk, which copies many protected programs direct to your hard disk so you can run them without a key disk. Great disk utilities (Mac Tools) also included. For Mac/Mac Plus, 1 or 2 drives. All 3 for $39.95 + $3 s/h. Visa/MC/Chk.
Central Point Software, Inc., 9700 S.W. Capitol Hwy. #100, Portland, OR 97219, 503/244-5782

○ *Word Processing*

Japanese Word Processor

- *E/G Word* allows the user to input alphabets, which turn into kana-syllabaries on screen that can be converted to Kanji (3500) characters. $399. Req. 512K.
- *E/G Bridge* ($249) and *JAM* ($149) allow the user to input Japanese in major Mac application software.

Qualitas Trading Co., 323 Monte Vista Ave., #307, Oakland, CA 94611, 415/547-1520

The Macworld Directory is a comprehensive listing, by category, of products and services available for the Apple Macintosh. It provides advertisers with a low-cost advertising alternative and our readers with an easy reference guide.

FORMAT: The standard format includes a product ID, a 300-character descriptive ad, and a company name, address, and telephone number.

Advertisers may choose among categories already in use, or they may create their own. Display advertisers can cross-reference their current ad to the Macworld Directory for increased exposure.

RATES: Listings are accepted for a three-time consecutive insertion at a rate of $775. We offer a six-time insertion at $1320 that reflects a 15% frequency discount. Listings must be prepaid (except for established display advertisers) upon submission of ad copy. Checks, money orders, Visa, and MasterCard are accepted.

DEADLINE: For copy deadlines and further information please contact Niki Stranz, your Macworld Directory Account Manager, at 415/546-7722 or 800/435-7766 (800/435-7760 in California). Please send copy and prepayment to the Macworld Directory, 501 Second St. #600, San Francisco, CA 94107.

We're the Leaders in Software Duplication

Just ask the Fortune 500 companies who recently toured Echo Data and picked us over ALL the competition.

They met with management, checked facilities, and asked tough questions about quality control. Our ability to handle "rush" jobs got careful attention.

THEY CHOSE ECHO DATA! Who did YOU just call?

CALL: 800-533-4188 or 215-363-2400

CALL FOR OUR LATEST BULK DISK PRICES...

Maxell–Nashua–Sony–Dysan
and
**** NEW!! C.ITOH Rainbow disks ****

ECHO DATA SERVICES, INC.
Marsh Creek Corp Center
Lionville, Pennsylvania 19353

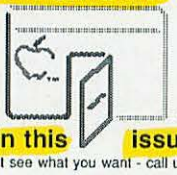
Circle 193 on reader service card

We RENT Mac Software !!

MacStore™
28 Tealwood
New Braunfels
Texas 78130

National **800-847-0026**

Ask about our frequent renter program !



We'll match any software rental price in this issue.

We have hundreds of other titles available for the Mac. If you don't see what you want - call us !

Accessory Pak 1 or Art Grabber	8.80	Mac Golf	9.45
Accounting Packages	Call	Mac Labeler	8.80
Battery Pak	8.80	Mac Lightning	14.80
Bulk Mailer	21.60	Medical or Legal Dictionary	13.30
Business Filevision	56.25	Mac Mat Book (all volumes 1 - 6)	25.47
Calendar Maker or Certificate Maker	8.90	Mac Publisher & Mac Publisher II	Call
Click Art, Effects, Letters, Publications (each)	8.80	Mac Spell Right or Mac Spell +	13.85
Consultant	28.80	Mac 3 D	27.80
Copy II Mac	8.80	Mac Tracks	8.80
Championship Boxing or Baseball	8.80	Mac the Knife 1, 2, or 3 (Art, Fonts, Ripper)	Call
Cricket Graph	27.90	Max RAM Max PRINT	8.80
Davinci (We have them all!)	Call	Micro Planner Plus	64.68
Dollars and Sense	18.70	More	34.69
D Mac III	58.08	Musicworks or Videoworks	13.19 & 14.15
Double Helix	60.50	Omnis III Plus	70.95
Excel	52.75	OverVue	36.80
Filemaker	29.20	Picture Base or Postermaker	8.80
Fluent Fonts, Fontastic, Font Explorer, Laser Fonts, Superfonts, UltraFonts...	Call	Pinball Construction Set	8.80
Ferrari Grand Prix or Flight Simulator	8.80	Quick Disk, Quick Word, Quick Paint (each)	8.80
Full Paint	14.56	Ready Set Go	Call
Gato, Orbitor, or Gridwars	8.80	Smart Alarms	8.90
Helix	49.50	Super Paint	13.40
Infocom games	Call	Tempo	13.30
LaserSpool	15.16	Thunderscan	37.50
Keystroke	64.68	Will Writer	8.80
Languages (Asm, Basic, Z Basic, C, Cobol, Experlisp, Fortran, TML Pascal, etc.)	Call	Write Now or Word Handler	Call
Microsoft Chart, File, Multiplan, Word	Call	Works	37.90
Mac Attack	8.80	**Accessories**	
Mc Cad	62.56	Cables - we stock most Mac cables	call
Mac Challenger or Mac Command	8.80	10 Sony Disks	10.95
Mac Draft	33.84	800k External Drives (double sided)	184.50
Mac Draw	32.47	Upgrades & Power Supply Board Repairs	Call
		20 Meg SCSI Hard Disk	695.00
		20 Meg Tape Back-Up	698.50

No membership fee • 16 day rentals • Rental applies to purchase

The store logo is a trademark of MacStore, Inc., the apple logo a trademark of Apple Comp. Inc.

MasterCard VISA

In Texas **800-222-1537** After tone ask operator for extension 993265
or dial direct **512-629-5419**

AMERICAN EXPRESS

Circle 16 on reader service card

Advertiser Index

Reader Service Number		Reader Service Number	
632	ADON Corp., 196	646	Microsoft, 165
—	AST Research, Inc., 10-11	647	Microsoft, 167
622	Abaton, 31	648	Microsoft, 169
552	Adobe, 75	585	Microtek, 68
274	Affinity Microsystems Ltd., 179	518	MindWork Software, 86-87
306	Aldus Corp., 92	406	Mirror Technologies, 39-41
227	Altsys, 164	583	N² Products, 214
204	Ann Arbor Softworks, 36-37	628	OfficeTalk, 85
—	Anthro Corp., 6	575	Orange Micro, Inc., 181
—	Apple Computer, Inc., 8-9	547	Owl Int'l., 34
610	Automated Language Processing Systems, 175	—	PC Connection, 100-103
		45	PC Network, 217
21	BASF, 161	553	Peachtree Software, 172
490	Bede Tech, 186-189	509	Peripheral Land, 195
627	Bering, 96	560	Personal Training Systems, 84
588	Blyth Software, 82-83	77	ProVUE Development Co., 56
381	Borland Int'l., IFC-1	194	Programs Plus, 170-171
38	Bravo Technologies, Inc., 38	334	Public Domain Exchange, The, 58
604	CE Software, 178	577	Radius, Inc., 15
—	CasadyWare, 62	630	SBT Corp., 190
607	Central Point Software, 178	—	Satori Software, 166
524	Centram, 156-157	649	Searchlink, 160
148	Checkmark, 214	641	Sequoia mb, 218
619	Cognition Technology, 219	266	Silicon Beach Software, 57
496	CompuCover, 192	555	Silicon Express, 211
330	CompuServe, 158	—	Simon & Schuster Software, 174
271	Computer Friends, 162	438	SmethersBarnes, 25
620	ComputerCover Co., 194	640	SoftStyle, 46-47
611	Coral Software, 184	642	Softflair, Inc., 210
384	Cricket Software, 44-45	456	Softview, 197
584	DCC Systems, 210	—	Software Library, 30
615	DEST, 18-19	561	Spencer Organization, 192
—.	Data Tailor, 50-51	542	Summit Systems, 209
281	DataViz, 48	618	Sun Remarketing, 198
612	DataWiz, 192	—	SuperMac Technology, 71, 73
637	Datacopy, 199	491	Systat, 212
562	Diskette Connection, 176	332	T/Maker Co., 193
645	Dynamac, 61	639	T.B.S.P., Inc., 24
600	E-Machines, 90	461	Tangent Technologies, 168
—	Echo Data Services, Inc., 208	478	Target Software, 26-27, 52, 155
602	Ehman Engineering, 177	96	Think Technologies, 7
572	G.A.S. Int'l., 215	643	Think Technologies, 74
—	GE Information Services, 72	167	Thunderware, 88
323	GTCO Corp., 180	483	Tussey Computer Products, 80
520	Greene, Johnson, 62	134	USA-Flex, 28
257	Hayes, 60	—	U.S/Disk, Inc., 201
644	Howard W. Sams & Co., 42	537	Uptime, 5
530	I/O Design, 184	591	Value Line Software, 163
638	ISM, Inc., 216	383	Videx, 182
272	Icon Review, 64-67	439	Warp Nine Engineering, 22-23
249	Infosphere, IBC	374	Williams & Macias, 94
579	1st Aid Software, 70		
570	Jasmine Computer Systems, 49		
599	Kamerman Labs, 29		
11	Kensington, 69, BC		
238	Lionheart Press, 210		
50	Living Videotext, 12, 16-17		
—	Lotus Development Corp., 54-55		
395	Mac Doctor Electronics, 33		
—	MacConnection, 100-103		
337	MacMemory, Inc., 43		
368	MacRentals, 59		
16	MacStore, 208		
2	Manhattan Graphics, 20		
563	Meku, 216		
596	Meta Software, 70		
235	Micrographic Images, 98		
—	Microsoft, 76-77, 78-79		

MACWORLD

The Macintosh™ Magazine

Free Product Information Service

Get more information on products you're interested in—simply return one of these cards today. There's no cost. And no obligation.

1. Your primary job function:
a. Corporate or general manager
b. Department manager
c. MIS manager
d. Professional
e. Other _____

2. Number of employees in your company:
1. 25 or fewer
2. 26-99
3. 100-499
4. 500-999
5. 1000 or more

3. How soon do you plan to buy?
a. Now
b. In 4-6 months
c. In 7-12 months
d. Beyond 12 months
e. Reference only

4. For how many personal computers do you buy products? (Include both company and personal units, please.)
1. 1
2. 2-4
3. 5-9
4. 10 or more

5. How many of the above are Macintoshes?
a. 1
b. 2-4
c. 5-9
d. 10 or more

It's easy to get more information on products advertised in *Macworld*. Here's how:

- Print or type your name and address and circle the appropriate answer to each question.
- Circle the numbers that correspond to the reader service numbers for the products that interest you. These numbers appear in the ads and in the Advertiser Index.
- Apply first-class postage before mailing.

1	2	3	4	5	6	7	8	9	10	11	12
13	14	15	16	17	18	19	20	21	22	23	24
25	26	27	28	29	30	31	32	33	34	35	36
37	38	39	40	41	42	43	44	45	46	47	48
49	50	51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70	71	72
73	74	75	76	77	78	79	80	81	82	83	84
85	86	87	88	89	90	91	92	93	94	95	96
97	98	99	100	101	102	103	104	105	106	107	108
109	110	111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130	131	132
133	134	135	136	137	138	139	140	141	142	143	144
145	146	147	148	149	150	151	152	153	154	155	156
157	158	159	160	161	162	163	164	165	166	167	168
169	170	171	172	173	174	175	176	177	178	179	180
181	182	183	184	185	186	187	188	189	190	191	192
193	194	195	196	197	198	199	200	201	202	203	204
205	206	207	208	209	210	211	212	213	214	215	216
217	218	219	220	221	222	223	224	225	226	227	228
229	230	231	232	233	234	235	236	237	238	239	240
241	242	243	244	245	246	247	248	249	250	251	252
253	254	255	256	257	258	259	260	261	262	263	264
265	266	267	268	269	270	271	272	273	274	275	276
277	278	279	280	281	282	283	284	285	286	287	288
289	290	291	292	293	294	295	296	297	298	299	300
301	302	303	304	305	306	307	308	309	310	311	312
313	314	315	316	317	318	319	320	321	322	323	324
325	326	327	328	329	330	331	332	333	334	335	336
337	338	339	340	341	342	343	344	345	346	347	348
349	350	351	352	353	354	355	356	357	358	359	360
361	362	363	364	365	366	367	368	369	370	371	372
373	374	375	376	377	378	379	380	381	382	383	384
385	386	387	388	389	390	391	392	393	394	395	396
397	398	399	400	401	402	403	404	405	406	407	408
409	410	411	412	413	414	415	416	417	418	419	420
421	422	423	424	425	426	427	428	429	430	431	432
433	434	435	436	437	438	439	440	441	442	443	444
445	446	447	448	449	450	451	452	453	454	455	456
457	458	459	460	461	462	463	464	465	466	467	468
469	470	471	472	473	474	475	476	477	478	479	480
481	482	483	484	485	486	487	488	489	490	491	492
493	494	495	496	497	498	499	500	501	502	503	504
505	506	507	508	509	510	511	512	513	514	515	516
517	518	519	520	521	522	523	524	525	526	527	528
529	530	531	532	533	534	535	536	537	538	539	540
541	542	543	544	545	546	547	548	549	550	551	552
553	554	555	556	557	558	559	560	561	562	563	564
565	566	567	568	569	570	571	572	573	574	575	576
577	578	579	580	581	582	583	584	585	586	587	588
589	590	591	592	593	594	595	596	597	598	599	600
601	602	603	604	605	606	607	608	609	610	611	612
613	614	615	616	617	618	619	620	621	622	623	624
625	626	627	628	629	630	631	632	633	634	635	636
637	638	639	640	641	642	643	644	645	646	647	648
649	650	651	652	653	654	655	656	657	658	659	660
661	662	663	664	665	666	667	668	669	670	671	672
673	674	675	676	677	678	679	680	681	682	683	684
685	686	687	688	689	690	691	692	693	694	695	696
697	698	699	700	701	702	999					

Please print or type all information

Name

Company

Address

City, State, Zip (Zip code required to ensure delivery)

Phone: Area Code/Number

PLEASE NOTE: This card is for your convenience in obtaining information on products advertised in *Macworld*. Please send editorial comments or inquiries to The Editor, *Macworld*, 501 Second St. #600, San Francisco, CA 94107.

4BDX3

Circle number 999 to subscribe to *Macworld*. We will bill you $24 for a one-year (12-issue) subscription (U.S. only).

Valid through 6/12/87 **W Mar 87**

MACWORLD

The Macintosh™ Magazine

Free Product-Information Service

Get more information on products you're interested in—simply return one of these cards today. There's no cost. And no obligation.

1. Your primary job function:
a. Corporate or general manager
b. Department manager
c. MIS manager
d. Professional
e. Other _____

2. Number of employees in your company:
1. 25 or fewer
2. 26-99
3. 100-499
4. 500-999
5. 1000 or more

3. How soon do you plan to buy?
a. Now
b. In 4-6 months
c. In 7-12 months
d. Beyond 12 months
e. Reference only

4. For how many personal computers do you buy products? (Include both company and personal units, please.)
1. 1
2. 2-4
3. 5-9
4. 10 or more

5. How many of the above are Macintoshes?
a. 1
b. 2-4
c. 5-9
d. 10 or more

It's easy to get more information on products advertised in *Macworld*. Here's how:

- Print or type your name and address and circle the appropriate answer to each question.
- Circle the numbers that correspond to the reader service numbers for the products that interest you. These numbers appear in the ads and in the Advertiser Index.
- Apply first-class postage before mailing.

1	2	3	4	5	6	7	8	9	10	11	12
13	14	15	16	17	18	19	20	21	22	23	24
25	26	27	28	29	30	31	32	33	34	35	36
37	38	39	40	41	42	43	44	45	46	47	48
49	50	51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70	71	72
73	74	75	76	77	78	79	80	81	82	83	84
85	86	87	88	89	90	91	92	93	94	95	96
97	98	99	100	101	102	103	104	105	106	107	108
109	110	111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130	131	132
133	134	135	136	137	138	139	140	141	142	143	144
145	146	147	148	149	150	151	152	153	154	155	156
157	158	159	160	161	162	163	164	165	166	167	168
169	170	171	172	173	174	175	176	177	178	179	180
181	182	183	184	185	186	187	188	189	190	191	192
193	194	195	196	197	198	199	200	201	202	203	204
205	206	207	208	209	210	211	212	213	214	215	216
217	218	219	220	221	222	223	224	225	226	227	228
229	230	231	232	233	234	235	236	237	238	239	240
241	242	243	244	245	246	247	248	249	250	251	252
253	254	255	256	257	258	259	260	261	262	263	264
265	266	267	268	269	270	271	272	273	274	275	276
277	278	279	280	281	282	283	284	285	286	287	288
289	290	291	292	293	294	295	296	297	298	299	300
301	302	303	304	305	306	307	308	309	310	311	312
313	314	315	316	317	318	319	320	321	322	323	324
325	326	327	328	329	330	331	332	333	334	335	336
337	338	339	340	341	342	343	344	345	346	347	348
349	350	351	352	353	354	355	356	357	358	359	360
361	362	363	364	365	366	367	368	369	370	371	372
373	374	375	376	377	378	379	380	381	382	383	384
385	386	387	388	389	390	391	392	393	394	395	396
397	398	399	400	401	402	403	404	405	406	407	408
409	410	411	412	413	414	415	416	417	418	419	420
421	422	423	424	425	426	427	428	429	430	431	432
433	434	435	436	437	438	439	440	441	442	443	444
445	446	447	448	449	450	451	452	453	454	455	456
457	458	459	460	461	462	463	464	465	466	467	468
469	470	471	472	473	474	475	476	477	478	479	480
481	482	483	484	485	486	487	488	489	490	491	492
493	494	495	496	497	498	499	500	501	502	503	504
505	506	507	508	509	510	511	512	513	514	515	516
517	518	519	520	521	522	523	524	525	526	527	528
529	530	531	532	533	534	535	536	537	538	539	540
541	542	543	544	545	546	547	548	549	550	551	552
553	554	555	556	557	558	559	560	561	562	563	564
565	566	567	568	569	570	571	572	573	574	575	576
577	578	579	580	581	582	583	584	585	586	587	588
589	590	591	592	593	594	595	596	597	598	599	600
601	602	603	604	605	606	607	608	609	610	611	612
613	614	615	616	617	618	619	620	621	622	623	624
625	626	627	628	629	630	631	632	633	634	635	636
637	638	639	640	641	642	643	644	645	646	647	648
649	650	651	652	653	654	655	656	657	658	659	660
661	662	663	664	665	666	667	668	669	670	671	672
673	674	675	676	677	678	679	680	681	682	683	684
685	686	687	688	689	690	691	692	693	694	695	696
697	698	699	700	701	702	999					

Please print or type all information

Name

Company

Address

City, State, Zip (Zip code required to ensure delivery)

Phone: Area Code/Number

PLEASE NOTE: This card is for your convenience in obtaining information on products advertised in *Macworld*. Please send editorial comments or inquiries to The Editor, *Macworld*, 501 Second St. #600, San Francisco, CA 94107.

4BDX3

Circle number 999 to subscribe to *Macworld*. We will bill you $24 for a one-year (12-issue) subscription (U.S. only).

Valid through 6/12/87 W Mar 87

PLACE
FIRST-CLASS
POSTAGE HERE.
(POST OFFICE
WILL NOT DELIVER
WITHOUT STAMP.)

MACWORLD

Product Information Service
P.O. Box 92844
Rochester, NY 14692

PLACE
FIRST-CLASS
POSTAGE HERE.
(POST OFFICE
WILL NOT DELIVER
WITHOUT STAMP.)

MACWORLD

Product Information Service
P.O. Box 92844
Rochester, NY 14692

Product Index

Reader Service Number

Software

Business

306 Aldus Corp., 92
381 Borland Int'l., IFC-1
38 Bravo Technologies, 38
148 Checkmark, 214
384 Cricket Software, 44-45
— Data Tailor, 50-51
249 Infosphere, IBC
238 Lionheart, 210
50 Living Videotext, 12, 16-17
— Lotus Development Corp., 54-55
— Microsoft, 76-79
575 Orange Micro, Inc., 181
547 Owl Int'l., 34
553 Peachtree Software, 172
560 Personal Training Systems, 84
630 SBT Corp., 190
— Satori Software, 166
640 SoftStyle, 46-47
642 Softflair, Inc., 210
456 Softview, 197
542 Summit Systems, 209
491 Systat, Inc., 212
639 TBSP, Inc., 24
591 Value Line Software, 163
383 Videx, 182

Vertical

610 Automated Language Processing Systems, 175
— Satori Software, 166
642 Softflair, Inc., 210

Data Management

588 Blyth Software, 82-83
381 Borland Int'l., IFC-1
— Data Tailor, 50-51
— Lotus Development Corp., 54-55
— Microsoft, 78-79
77 ProVUE Development Co, 56
383 Videx, 182

Word Processing

204 Ann Arbor Softworks, 36-37
520 Greene, Johnson, 62
— Microsoft, 78-79
518 MindWork Software, 86-87
332 T/Maker Co., 193
478 Target Software, 155

Communications

524 Centram, 156-157
281 DataViz, 48
249 Infosphere, IBC
— Microsoft, 78-79
628 OfficeTalk, 85
334 Public Domain Exchange, The, 58
461 Tangent Technologies, 168

Educational

560 Personal Training Systems, 84

Graphics/Desktop Publishing

622 Abaton, 31
552 Adobe, 75
274 Affinity Microsystems Ltd., 179
306 Aldus Corp., 92
227 Altsys, 164

Reader Service Number

204 Ann Arbor Softworks, 36-37
— CasadyWare, 62
384 Cricket Software, 44-45
50 Living Videotext, 12, 16-17
2 Manhattan Graphics, 20
596 Meta Software, 70
547 Owl Int'l., 34
334 Public Domain Exchange, The, 58
266 Silicon Beach Software, 57
640 SoftStyle, 46-47
478 Target Software, 26-27
643 Think Technologies, 74
374 Williams & Macias, 94

Personal Business/Home

604 CE Software, 178
638 ISM, Inc., 216
518 MindWork Software, 86-87
547 Owl Int'l., 34
— Simon & Schuster Software, 174
374 Williams & Macias, 94

Entertainment

638 ISM, Inc., 216

Languages/Development Systems

381 Borland Int'l., IFC-1
611 Coral Software, 184
646 Microsoft, 165, 167, 169
438 SmethersBarnes, 25
96 Think Technologies, 7

Utilities

607 Central Point Software, 178
579 1st Aid Software, 70
640 SoftStyle, 46-47

Miscellaneous

306 Aldus Corp., 92
330 CompuServe, 158
— GE Information Services, 72
560 Personal Training Systems, 84
334 Public Domain Exchange, The, 58
649 Searchlink, 160
561 Spencer Organization, 192
478 Target Software, 52
537 Uptime, 5
383 Videx, 182
374 Williams & Macias, 94

Hardware

Computer Systems

— Apple Computer Inc., 8-9
645 Dynamac, 61

Digitizers/Scanners

— AST Research, Inc., 10-11
615 DEST, 18-19
572 G.A.S. Int'l., 215
585 Microtek, 68
167 Thunderware, 88

Display

271 Computer Friends, 162
600 E-Machines, 90
235 Micrographic Images, 98
583 N² Products, 214
577 Radius, Inc., 15

Modems

271 Computer Friends, 162
257 Hayes, 60

Reader Service Number

Hard Disks/Storage

632 ADON Corp., 196
627 Bering, 96
584 DCC Systems, 210
602 Ehman Engineering, 177
570 Jasmine Computer Systems, 49
599 Kamerman Labs, 29
406 Mirror Technologies, 39-41
509 Peripheral Land, 195
— SuperMac Technology, 71, 73
439 Warp Nine Engineering, 22-23

Miscellaneous

271 Computer Friends, 162
323 GTCO Corp., 180
395 Mac Doctor Electronics, 33
337 MacMemory, 43
583 N² Products, 214
561 Spencer Organization, 192
618 Sun Remarketing, 198

Accessories

Floppy Disks/Holders

21 BASF, 161
562 Diskette Connection, 176
— Echo Data Services, Inc., 208

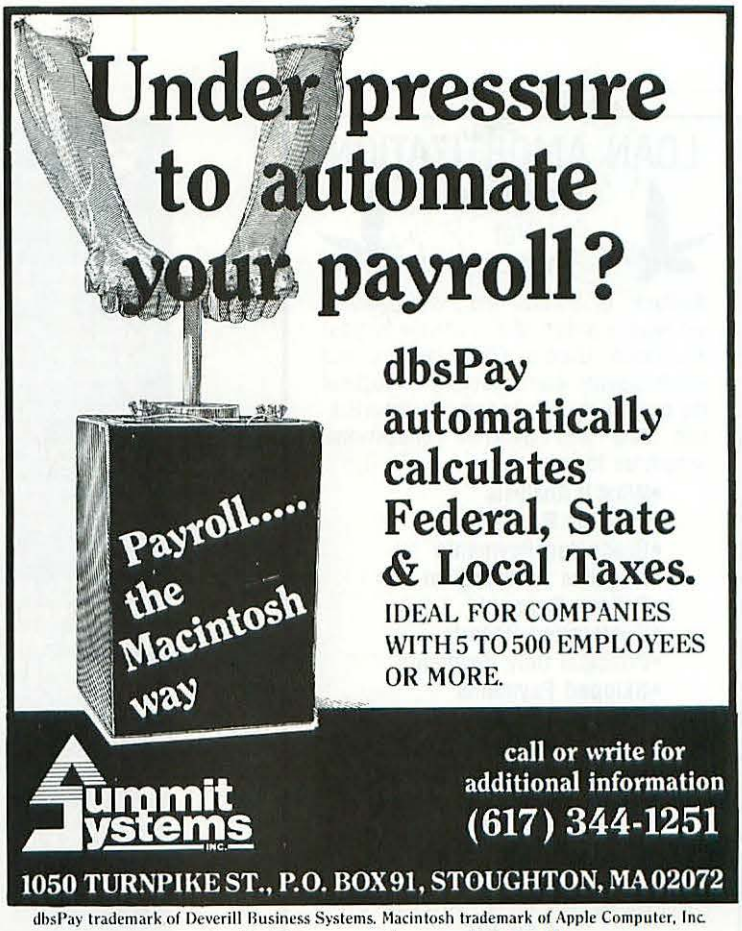
Reader Service Number

Miscellaneous

— Anthro Corp., 6
490 Bede Tech, 186-189
496 CompuCover, 192
620 ComputerCover Co., 194
612 DataWiz, 192
644 Howard W. Sams & Co., 42
530 I/O Design, 184
11 Kensington, 69, BC
563 Meku, 216

Mail Order

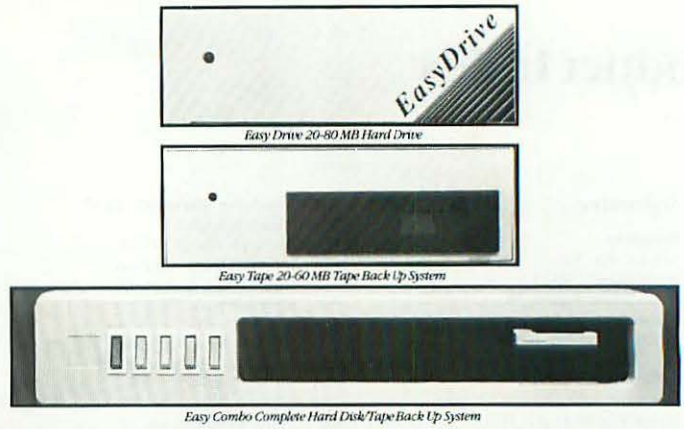
272 Icon Review, 64-67
— MacConnection, 100-103
368 MacRentals, 59
16 MacStore, 208
— PC Connection, 100-103
45 PC Network, 217
194 Programs Plus, 170-171
641 Sequoia mb, 218
555 Silicon Express, 211
— Software Library, 30
483 Tussey Computer Products, 80
— U.S/Disk, Inc., 201
134 USA-Flex, 28



dbsPay trademark of Deverill Business Systems. Macintosh trademark of Apple Computer, Inc.

Circle 542 on reader service card

THREE EASY PIECES.



Easy Drive 20-80 MB Hard Drive

Easy Tape 20-60 MB Tape Back Up System

Easy Combo Complete Hard Disk/Tape Back Up System

Confused about hard drive or tape back-up systems? You need easy solutions. Easy Drives for Macintosh.

THEY'RE SIMPLE. Just plug 'em in, and you're up to speed. Boots from start up, so there's no extra waiting.

THEY'RE FAST. SCSI based - 16 times faster than floppy port drives, and 5 times faster than other fixed drive systems.

THEY'RE BIG. Hard drives and tape back-ups with 20 to 80 megabytes of storage, with unlimited expansion potential.

THEY'RE COMPACT. Easy Drives are designed to fit right under or next to the Macintosh in a minimum of space.

THEY'RE RELIABLE. Easy Drives deliver up to 20,000 hours of use between servicing - which only takes about 30 minutes!

THEY'RE AFFORDABLE. Though loaded with features, Easy Drives still come at a price take that isn't hard to handle.

Easy Drives. Easy Solutions to Hard Disk Decisions.

DC SYSTEMS
3921 East La Palma #N
Anaheim, CA 92807
(714) 632-3902

DEALER INQUIRIES INVITED.

Circle 584 on reader service card

LOAN AMORTIZATION
Powerful Yet Graceful

AmPack, by Softflair Inc., is a powerful yet flexible amortization package for your Macintosh. Used by CPAs, lawyers, real estate agents and investors throughout the country to analyze and save amortization data and generate professional schedules for clients.

- **What if Analysis**
- **Variable Rate Loans**
- **Graduated Payments**
- **Negative Amortization**
- **Balloon Payments**
- **Customized Reports**
- **Principal Only Payments**
- **Skipped Payments**
- **Odd day Interest**
- **360 or 365 Day Interest**
- **Multiple Payment Intervals**

For your copy or more information Call or Write:

Softflair, Inc.
2100 West 53rd St. • Sales Div. •
Minneapolis, MN 55419 • (612) 924-3404

$49.50

Quantity Discounts Available. We accept VISA, MC, checks, and C.O.D. orders. Add $5 for shipping and handling. MN residents add 6% sales tax.

Circle 642 on reader service card

LIONHEART

BUSINESS & STATISTICAL SOFTWARE

PC/MS-DOS (5¼ & 3½), MACINTOSH, AMIGA ATARI ST, C64/128, CP/M, APPLE DOS 3.3

Explanatory books with professional compiled software; the new standard for statistical use. The influential Seybold Report on Professional Computing has this to say about Lionheart "... our sentimental favorite because of its pragmatic approach to the basic statistical concepts... The thinking is that the computer merely facilitates the calculations; the important thing is to be able to formulate a problem correctly and to determine what type of analysis will be most valuable." Let Lionheart help you get ahead of the competition! Spreadsheet compatible.

• BUSINESS STATISTICS	$145
• EXPERIMENTAL STATISTICS	145
• MULTIVARIATE ANALYSIS	150
• EXPLORATORY DATA ANALYSIS	75
• STATISTICS FOR MARKETING	150
• QUALITY CONTROL & INDUSTRIAL EXPERIMENTS	145
• FORECASTING AND TIME-SERIES	145
• SALES AND MARKET FORECASTING	145
• DECISION ANALYSIS TECHNIQUES	110
• LINEAR & NON-LINEAR PROGRAMMING	95
• PERT & CRITICAL PATH TECHNIQUES	95
• OPTIMIZATION	110

VISA, MasterCard, AMEX, Check

P.O. Box 379, ALBURG, VT 05440

(514) 933-4918

Circle 238 on reader service card

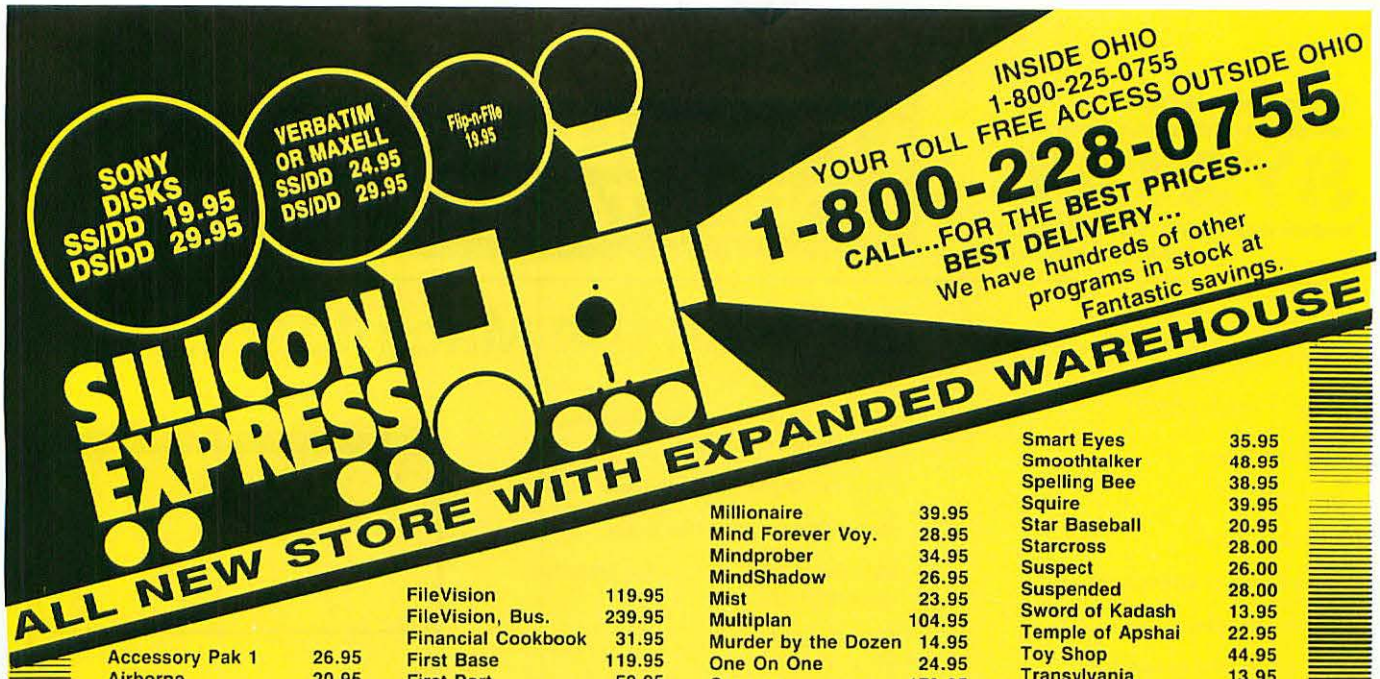


Leave your mark on life.

By leaving even the smallest legacy to the American Cancer Society in your will, you can leave a loving and lasting impression on life. And giving life is the greatest way of leaving your mark on it.

AMERICAN CANCER SOCIETY®

For more information, call your local ACS Unit or write to the American Cancer Society, 4 West 35th Street, New York, NY 10001.



Accessory Pak 1	26.95
Airborne	20.95
Alter Ego Female	29.95
Alter Ego Male	34.95
Amazon	29.95
Ancient Art of War	26.95
Archon	22.00
Art A La Mac Vol. 1	23.95
Art A La Mac Vol. 2	23.95
Back Basics Combo	259.95
General Ledger	104.95
Accts. Receivable	104.95
Accts. Payable	104.95
Ballyhoo	22.95
Balance of Power	29.95
Barron	39.95
Basic Interpreter	88.95
Battery Pak	26.49
Borrowed Time	26.95
BPI Gen. Accting	298.95
Brataccus	26.95
Bridge 4.0	19.95
Chmpshp. Boxing	23.95
Chart	71.95
Chess Master 2000	27.95
Click Art	29.95
Click Art Effects	29.95
Click Art Letters	29.95
Click Art Publishing	29.95
Click On Worksheet	47.95
Comicworks	47.95
Computer Baseball	23.95
Copy II Mac	18.50
Coveted Mirror	13.95
Crimson Crown	13.95
Crunch	179.95
Cus. Calculator. Con.	37.95
Cutthroats	23.69
Cyborg	23.95
Deadline	28.00
DeJa Vu	29.95
Deluxe Music Const.	31.95
Desk Organizer	59.95
Dollars & Sense	80.95
Dragonworld	29.95
Dynamic Reader	41.95
Easy 3-D	59.95
Enchanted Scepters	23.95
Enchanter	22.00
Excel	224.95
Factfinder	83.95
Fahrenheit 451	29.95
Felony	14.95
Filefinder	98.95
FileVision	119.95
FileVision, Bus.	239.95
Financial Cookbook	31.95
First Base	119.95
First Port	59.95
Flight Simulator	34.95
Fluent Fonts	28.95
Fokkner Triplane	39.95
Fooblitzky	27.95
Forbidden Castle	23.95
Forecast	40.95
Fortran	168.95
Front Desk	89.95
Fullpaint	54.95
Gato	25.95
Gemstone Warrier	20.95
Geometry	59.95
Golden Oldies	24.95
Gold Finger	23.95
Graphic Works	56.95
Graphics Accents	28.95
Graphics Magician	34.95
Great Paper Airplane	23.95
Hacker	26.95
Hardball	29.95
Harrier Strike	34.95
Helix	239.95
Helix, Double	299.95
High Stakes	23.95
Hitchikers Guide	22.00
Home Accountant	51.95
Infidel	26.00
In Touch	78.95
Kidtalk	38.95
Lode Runner	23.95
Logo	74.95
Luscher Profile	23.95
Mac Art Department	23.95
Mac Attack	34.95
Mac Calendar	59.95
Mac Challenger	29.95
Mac Checkers	29.95
Mac Fun Pak	23.95
Mac Gammon/Crib.	29.95
Mac K.A.T.	144.60
Mac Lighting	59.95
Mac Line	89.95
Mac Spell+	54.95
Mac the Ripper	26.95
Mac 3-D	114.95
Mac Type	25.95
Mac Vegas	34.95
Mac Vision	179.95
Mac Wordhandler	69.96
Mastertype	29.95
Math Blaster	26.50
Math Flash	25.95
Millionaire	39.95
Mind Forever Voy.	28.95
Mindprober	34.95
MindShadow	26.95
Mist	23.95
Multiplan	104.95
Murder by the Dozen	14.95
One On One	24.95
Overvue	179.95
Orbiter	34.95
Perfect Score SAT	46.95
Personal Accountant	54.95
PFS: File	69.95
PFS: Report	69.95
PFS: File & Report	104.95
Pinball Construction	21.25
Planetfall	22.00
Print Shop	49.95
Pyramid of Peril	29.95
Quset	13.95
Racter	26.95
Rags to Riches	
General Ledger	98.95
Accts. Receivables	98.95
Accts. Payable	98.95
Three Pack	248.95
Rambo First Blood II	23.95
Ready Set Go	87.95
Rendezvous W/Rama	29.95
Rev. of the Ancients	23.95
Rogue	22.45
Run for the Money	32.95
Sargon III	27.20
Seastalker	22.00
Shanghai	29.95
Sidekick W/Phonelink	59.95
Silicon Press	47.95
Skyfox	24.25
Sorcerer	26.00
Speed Reader	36.95
Spellbreaker	34.95
Spell It	26.50
Smart Eyes	35.95
Smoothtalker	48.95
Spelling Bee	38.95
Squire	39.95
Star Baseball	20.95
Starcross	28.00
Suspect	26.00
Suspended	28.00
Sword of Kadash	13.95
Temple of Apshai	22.95
Toy Shop	44.95
Transylvania	13.95
Tycoon	39.95
Type Fonts for Text	28.95
Type Ft. for Hdlines	41.95
Typing Tutor III	35.95
Ultima III	34.95
Uninvited	29.95
VideoWorks	57.95
View to a Kil	23.95
Voodoo Island	23.95
Willwriter	26.95
Winter Games	21.45
Wishbringer	27.95
Witness	22.00
Wizardry	35.95
Word	110.95
Word Handler	54.95
Word Play	25.95
Xyphus	13.95
Zork I	21.75
Zork II Zork III	24.75
HARDWARE	
Color Paper Pack	12.95
Color Printer Rbns	CALL
Compuserve Starter	21.95
Flip-n-File	19.95
Lime	41.95
Mac 10 (Paradise)	699.95
Mac 10 (Tecmar)	1699.95
Mac 20 (Paradise)	1099.95
Mac Drive	224.95
Quickstick	44.95
Printshop Refill	12.25
Printer Stand	16.95

SILICON EXPRESS

5955 E. Main St. Columbus, Ohio 43213

1-614-868-6868

YOUR ORDER FORM

SILICON EXPRESS

5955 E. Main St. Columbus, Ohio 43213

NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

CHARGE CARD # _____ Exp. Date _____

QTY.	DESCRIPTION	PRICE

Computer Type _____ SHIPPING

Phone No. _____ TOTAL

Add $3.00 shipping, 4.95 in Hawaii and Alaska. MasterCard, Visa accepted. Personal checks allow 2 weeks. 5.5% sales tax for Ohio residents. Returns accepted within 30 days. 20% restocking fee if not replaced with same item. Compatibility not guaranteed.

Circle 555 on reader service card

SYSTAT™

LESS BULK MORE STATISTICS!

Now on the Macintosh...

Mac Features:

- Pull-down menus
- Clipboard
- Cut, Paste, Scroll
- Mouse control of spreadsheet
- Desk Accessories
- 400K, 800K, HFS compatibility

SYSTAT Capabilities:

- Full screen spreadsheet data editor
- Missing data, arrays, character variables
- Unlimited cases
- Process hierarchical files and variable length records
- Rectangular and triangular files
- Relational database management and report generation
- Character, numeric, and nested sorts
- Merge and append large files
- Unlimited numeric and character transformations
- Interactive or batch
- Read and write text and external files
- Subgroup processing in statistical modules with SELECT and BY
- Value labels
- RECODE statements for quick multiple codes
- Scatterplots, contours, histograms, stem-and-leaf, boxplots, bar charts, quantile, probability plots
- Basic statistics, frequencies
- T-tests
- Multi-way crosstabs with log-linear modeling, association coefficients, PRE statistics, asymptotic standard errors
- Pairwise/listwise missing value correlation, SSCP, covariance, Spearman, Gamma, Kendall Tau, Euclidean distances
- Linear, polynomial, multiple, stepwise, weighted regression
- Extended regression diagnostics
- Multivariate general linear model
- Multi-way ANOVA, ANOCOVA, MANOVA, repeated measures
- Post-hoc tests
- Principal components with rotations and scores
- Multidimensional scaling
- Multiple and canonical discriminant analysis, Bayesian classification
- Canonical correlation
- Cluster analysis (hierarchical, single, average, complete median, centroid linkage, k-means, cases, variables)
- Nonparametric statistics (sign, Runs, Wilcoxon, Kruskal-Wallis, Friedman two-way ANOVA, Mann-Whitney U, Kolmogorov-Smirnov, Lilliefors, Kendall coefficient of concordance)
- Time Series (smoothing, seasonal and nonseasonal ARIMA, ACF, PACF, Cross-correlation function, transformations, forecasting, Fourier analysis)
- Nonlinear estimation (non-linear regression, least absolute values regression, logit, probit, maximum likelihood estimation, iteratively reweighted least squares)

SYSTAT operates on the following machines: IBM-PC/XT/AT,™ Apple II,™ Apple Macintosh,™ Kaypro,™ HP 150,™ HP 9000,™ DEC Rainbow,™ VAX,™ Alpha Micro,™ MS-DOS,™ CP/M™ and UNIX.™

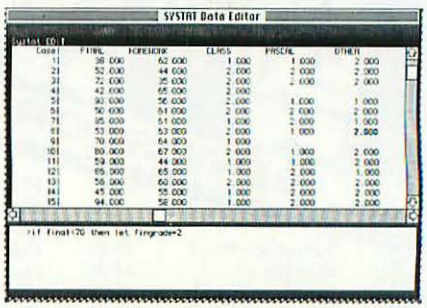
Single copy price:
$595 USA and Canada
$695 Foreign
Site licenses and quantity prices available

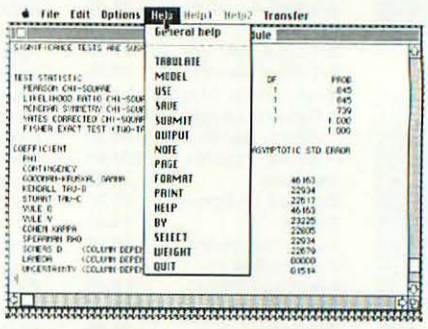
Call or write for additional information

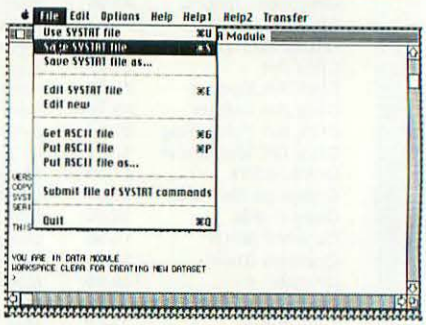
SYSTAT, Inc.
2902 Central Street
Evanston, IL 60201
312 **864.5670**

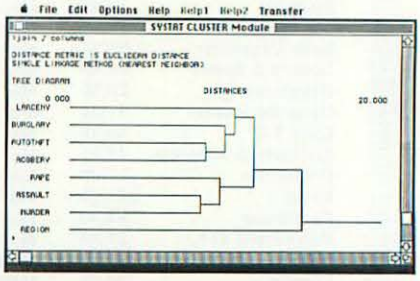
SYSTAT™

The system for statistics









Circle 491 on reader service card

Where to Buy

This section contains information about products featured editorially in this issue. Programs are not copy protected unless otherwise indicated. All prices are list prices. An asterisk indicates that a product review appears in this issue.

Abaton Scan 300
Abaton Technology Corp., 7901 Stoneridge Dr. #500, Pleasanton, CA 94566, 415/463-8822. 512K minimum memory; requires external drive; Mac Plus with SCSI hard disk and LaserWriter recommended. $2495.

Apple Guided Tour
Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014, 408/996-1010. 128K minimum memory. Free with each Macintosh purchase.

AppleShare
Version 1.0. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014, 408/996-1010. 512K minimum memory; requires AppleTalk network and a dedicated Mac Plus; HFS only. List price to be announced.*

AST TurboScan
Version 1.1. AST Research Inc., Apple Enhancement Products Group, 2121 Alton Ave., Irvine, CA 92714, 714/553-0340. 512K minimum memory; Mac Plus with hard disk and LaserWriter recommended. $2395.

CalendarMaker
Version 2.0. CE Software, 801 73rd St., Des Moines, IA 50312, 515/224-1995. 512K minimum memory; printer recommended. $30.*

ClickArt Effects
T/Maker Co., 1973 Landings Dr., Mountain View, CA 94043, 415/962-0195. 128K minimum memory. $49.95.

ColorPrint
Version 2.3. I/O Design, Inc., P.O. Box 156, Exton, PA 19341, 215/524-7277, 800/241-2122 (orders only). 128K minimum memory; requires a printer; 90 percent HFS compatible; prints only black and white on the LaserWriter. $29.95.

Dark Castle
Silicon Beach Software, Inc., P.O. Box 261430, San Diego, CA 92126, 619/695-6956. 512K minimum memory. $49.95.*

Deluxe Music Construction Set
Version 2.0. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404, 415/572-4525, 800/245-4525 (orders only), 800/562-1112 in California (orders only). Key-disk copy protection. 128K minimum memory; 512K recommended; MFS only. $49.95; $20 extra for an unprotected copy.*

Easy3D
Version 1.01. Enabling Technologies, 600 S. Dearborn #1306, Chicago, IL 60605, 312/427-0408. 512K minimum memory; ImageWriter or ImageWriter II recommended. $149.

FullPaint
Version 1.0E. Ann Arbor Softworks, Inc., 2393 Teller Rd. #106, Newbury Park, CA 91320, 805/375-1467. 512K minimum memory. $99.95.

HD-20SC
Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014, 408/996-1010. 512K minimum memory; requires Macintosh with SCSI port; HFS only. $1299.*

Hypernet
Version 1.0. General Computer Co., 215 First St., Cambridge, MA 02142, 617/492-5500. Not copyable. 512K minimum memory; requires HyperDrive. $299.

InBox
Version 1.3. Think Technologies, 420 Bedford St. #350, Lexington, MA 02173, 617/863-5590. 512K minimum memory. $295.

InterBridge
Version 1.05. Hayes Microcomputer Products, Inc., P.O. Box 105203, Atlanta, GA 30348, 404/441-1617. 512K minimum memory; product is hardware/software combination and connects to AppleTalk; requires Finder Version 5.2 or higher. $799.

JetReader
Datacopy Corp., 1215 Terra Bella Ave., Mountain View, CA 94043, 415/965-7900, 800/821-2898. 1MB minimum memory; requires Mac Plus and hard disk; HFS only. $2950.

LaserPaint Bundle
Knowledge Engineering, GPO Box 2139, New York, NY 10116, 212/473-0095. 1MB minimum memory; hard disk and LaserWriter recommended; HFS only. $1495.

LaserServer
DataSpace Corp., 185 Riviera Dr. #9, Markham, Ontario, Canada L3R 5J6, 416/474-0113, 800/387-0492. 512K minimum memory; requires AppleTalk and LaserWriter. $2295.

LS-300
Princeton Graphic Systems, 601 Ewing St., Bldg. A, Princeton, NJ 08540, 609/683-1660, 800/221-1490. $1095.

MacBuffer LW
Ergotron, Inc., 1621 E. 79th St., Minneapolis, MN 55420, 612/854-9116, 800/328-9839. 128K minimum memory; requires AppleTalk. Price to be announced.

MacDraw
Version 1.9. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014, 408/996-1010. 128K minimum memory; external drive and printer recommended. $195.

MacFlow
Version 1.02. Mainstay Software, 5311-B Derry Ave., Agoura Hills, CA 91301, 818/991-6540. 512K minimum memory. $125.*

MacInTax, 1986
SoftView, Inc., 4820 Adohr Ln., Camarillo, CA 93010, 805/388-2626, 800/622-6829, 800/622-8439. 128K minimum memory. Federal version $99, California version $45, federal annual update $45, California annual update $25.*

Macintizer
GTCO Corp. 7125 Riverwood Dr., Columbia, MD 21046, 301/381-6688. 128K minimum memory. $399.*

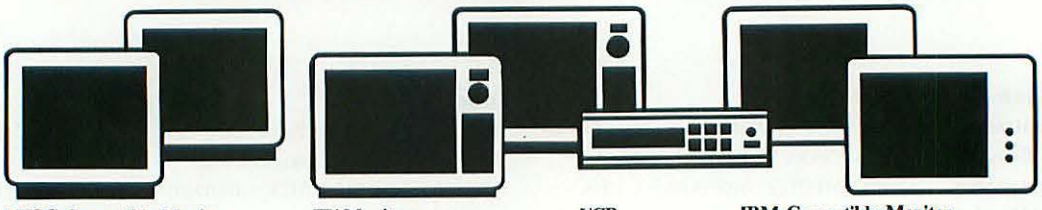
MacMovies
Version 1.2. Beck-Tech, P.O. Box 5027, Berkeley, CA 94705-0027, 415/548-4054, 800/227-2400 ext. 999. 512K minimum memory; Mac Plus and external drive or hard disk recommended. $99.95; includes limited warranty and customer support.*

MacPaint
Version 1.5. Apple Computer, 20525 Mariani Ave., Cupertino, CA, 95014, 408/996-1010. 128K minimum memory; 512K, external drive, and ImageWriter or LaserWriter recommended. $125.

MacProof
Version 2.1. Automated Language Processing Systems, 190 W. 800 North, Provo, UT 84604, 801/375-0090, 800/354-5656. 512K minimum memory; network version will work on a 512K; stand-alone version requires a 512KE or Mac Plus; external drive recommended. $195.*

(continues)

Turn Your Mac Into A Presentation Center



NTSC Compatible Monitor | TV Monitor | VCR (VHS & Beta) | IBM Compatible Monitor

At a surprisingly low cost, the Mac Video Converter enables video data from the Mac or Mac Plus to be simultaneously presented on NTSC or IBM monitors, TVs and VCRs.

It is intended for use in audio/visual displays such as classroom demos or to provide a convenient portable demo by storing the presentation on a video tape for use with a VCR.

An easy installation kit is available and requires no soldering. Installation will not void Apple Warranty.

The unit features:

- **Freeze-frame screen memory**
- **Video frame advance**
- **Inverse video**
- **Compatibility with all Mac Software**

Display Device	Video Output	Typical number of devices per output*
NTSC Compatible Monitor	Composite/ NTSC Video	10 Monitors
TV Monitor**	Composite/ NTSC Video	10 Monitors
VCR** (VHS & Beta)	Composite/ NTSC Video	1 VCR
IBM-RGB Monochrome (Switchable)	IBM Compatible Video	1 Monitor
High Speed Compatible Monitor (22.25 KHZ Horizontal scan rate)	High Speed Composite Video	5 Monitors
Color Monitor (RGB)	RGB Video	1 Monitor

*Maximum number of devices per output is a function of device type and impedance.

**May require use of RF Modulator.

Note: The two Composite/NTSC outputs are identical.

Each output will drive a number of specific display types (please see chart on the left) and will operate simultaneously.

Distributor and Dealer inquiries invited.

For further information please call:

N² PRODUCTS, INC.
15345 Bonanza Road
Victorville, CA 92392-2401
619 243-3632

Circle 583 on reader service card

PUT CHECKMARK ON YOUR PAYROLL.

A complete payroll system that calculates employee and employer payroll taxes, generates W-2's, paychecks, employee earnings and other reports. Use as a stand-alone system or interface with our General Ledger. $195.



CHECK MARK SOFTWARE INC.
P.O. Box 860
Fort Collins, Colorado 80522

To Order Call:

1-800-426-2466 ext. 338

MASTERCARD and VISA accepted
30 day Money Back Guarantee

Circle 148 on reader service card

OMNI-READER™

NOW YOUR COMPUTER CAN READ. A REVOLUTION IN TAKING WORDS FROM PAGE TO COMPUTER.

WAS ~~$799~~
NOW $199*

* LIMITED TIME ONLY
FREIGHT PREPAID ANYWHERE
IN THE CONTINENTAL U.S.A.

PC MAGAZINE PRODUCT OF '85

WORD PROCESSOR AND COMPUTER COMPATIBILITY.
The OMNI-READER can read text into most word processors, micro and personal computers. It attaches through a Serial RS232C interface as easily as a modem.

TYPEFACE QUALITY.
OMNI-READER has the ability to read letter quality text that has been printed on a letter quality printer or type writer in one of the four following typefaces.

TYPEFACE RECOGNITION.
The OMNI-READER can read four of the most commonly used typefaces: Courier 10, Courier 12, Letter Gothic and Prestige Elite.

MANUAL OPERATION.
Alpha or numeric print is scanned line by line by moving the reading head along the text. Capable of scanning both forwards and backwards, the reading head can be used to input all or selected portions of text.

GUIDE RULE. (pat. applied for)
A specially engineered guide rule makes it easy to align text. Because of the unique clock track, the reading head can be moved at variable speed and still read text. Scan time 2-3 seconds a line.

Each OMNI-READER comes with I.B.M. PC/Compatible or Apple MacIntosh software - at no extra charge. Interface Cable available for $16.00 extra. Specify I.B.M. or MacIntosh.



30 Day UNCONDITIONAL Replacement Warranty.

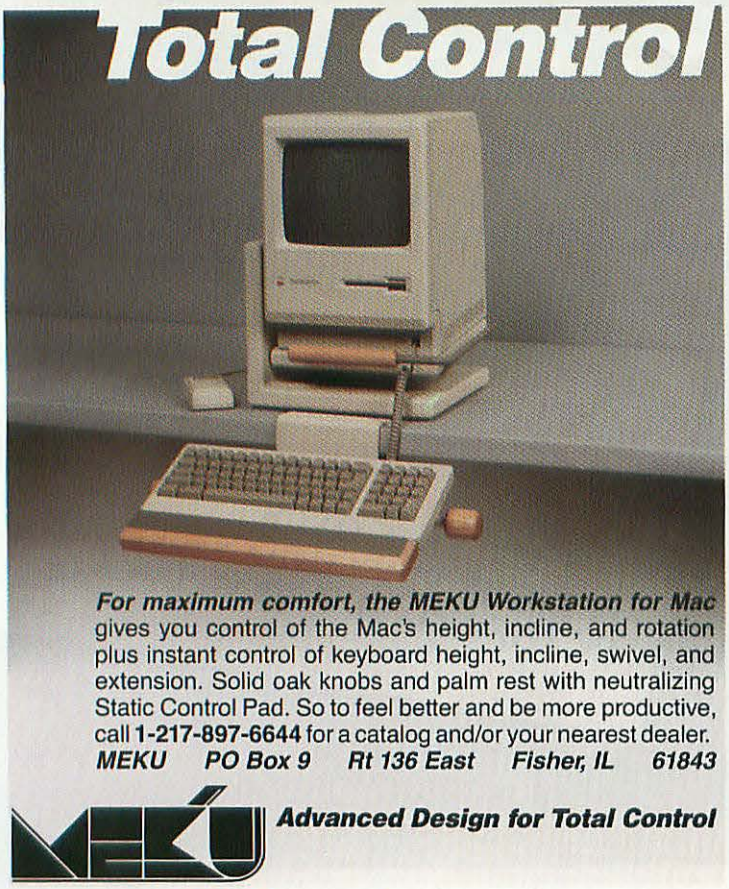
TO ORDER PLEASE CALL
TOLL FREE 1-800-523-4898
IN TEXAS 1-800-722-6013
TECH. ASST. 817-589-0313

Accepting major credit cards - C.O.D.: Visa, Master Card, and American Express or send money order or check to:

G.A.S. INTERNATIONAL, INC.

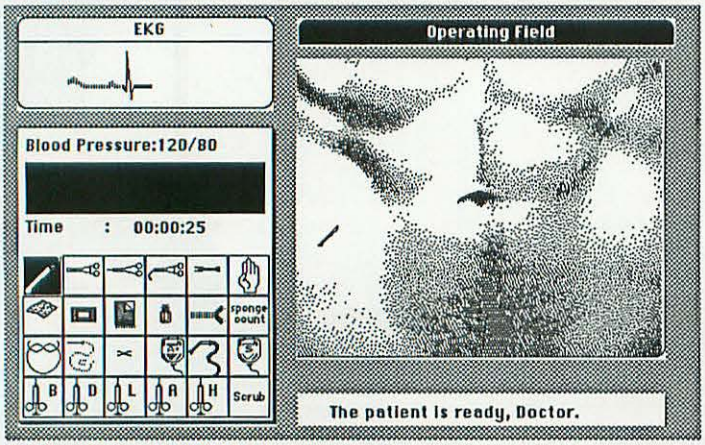
P.O. BOX 1282, EULESS, TEXAS 76040

Circle 572 on reader service card



Circle 563 on reader service card

The SURGEON
-The first surgery simulation game !



Have you ever wanted to try your hand at being a surgeon? The skill, the pressure, the split-second life or death decisions, this program has it all.
Operate in real time and deal with the complications of the surgery. Keep an eye on the EKG monitor and the patient's blood pressure while you excercise your skill. Feel the satisfaction of a successful operation!!
The SURGEON is also educational!! While performing the surgery you will learn the parts of a human body, medical terminologies and the actual steps involved in performing the surgical correction of a disease called aortic aneurysm.

For more information or for order call....
ISM, Inc.
P.O.Box 247
Phoenix, MD 21131
Ph: (301)-666-2672

Visa and Mastercard accepted
Macintosh is a registered trademark of APPLE computer, Inc.
The SURGEON is registered trademark of ISM,Inc.
Dealer inquiries welcome.
Price $60.00
Requires Minimum 512K

Circle 638 on reader service card

Where to Buy

MacScan
New Image Technology, 10300 Greenbelt Rd., Seabrook, MD 20706, 301/464-3100. 1MB minimum memory; LaserWriter recommended; HFS only. $1549.

MacServe
Version 2.1. Infosphere, 4730 S.W. Macadam Ave., Portland, OR 97201, 503/226-3620. Copy detection. 512K minimum memory; requires hard disk and AppleTalk; Mac Plus recommended. $250.

MacTablet
Summagraphics Corp., 777 State St. Ext., Fairfield, CT 06430, 203/384-1344, 800/243-9388. 128K minimum memory; Finder 5.2 or later version recommended for hard disk. 12- by 12-inch $599; 6- by 9-inch $449.*

MacVision
Version 2.0. PTI Industries, 269 Mount Hermon Rd., Scotts Valley, CA 95066, 408/438-0946. 128K minimum memory. $349.95.

MacWrite
Version 4.5. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014,. 408/996-1010. 128K minimum memory; 512K or Mac Plus and external drive recommended. $125.

MaxPlus
MacMemory, 2480 N. First St., San Jose, CA 95131, 408/922-0140. 1MB minimum memory. $499.*

Microsoft Excel
Version 1.03. Microsoft Corp., 16011 N.E. 36th Way, Box 97017, Redmond, WA 98073-9717, 206/882-8080, 800/426-9400. 512K minimum memory; external drive recommended. $395.

Microsoft Word
Version 3.0. Microsoft Corp., 16011 N.E. 36th Way, Box 97017, Redmond, WA 98073-9717, 206/882-8080, 800/426-9400. 512K minimum memory; requires 800K drive; Mac Plus and external drive recommended. $395.

MIDI Mac Sequencer
Version 2.5. Opcode Systems, 444 Ramona St., Palo Alto, CA 94301, 415/321-8977. Not copyable. 512K minimum memory; Mac with MIDI interface recommended. $250.*

Model 730
Datacopy Corp., 1215 Terra Bella Ave., Mountain View, CA 94043, 415/965-7900, 800/821-2898. 1MB minimum memory; requires Mac Plus and hard disk; HFS only. $3950.

MS-300A Intelligent Image Scanner
Microtek Lab, Inc., 16901 S. Western Ave., Gardena, CA 90247, 213/538-5369, 800/654-4160. 512K minimum memory; Mac Plus, LaserWriter, and hard disk recommended. $2495.

MultiUser Helix
Version r30. Odesta Corp., 4084 Commercial Ave., Northbrook, IL 60062, 312/498-5615, 800/323-5423. 512K minimum memory; requires a hard disk; Mac Plus recommended. $695.

Omnis 3 Plus
Version 3.22. Blyth Software, Inc., 2929 Campus Dr. #425, San Mateo, CA 94403, 415/571-0222, 800/843-8615, 800/223-8050. 512K minimum memory; hard disk recommended. $495-$2995 (price varies for multi-user version).

One + One
Levco, Inc., 6160 Lusk Blvd. #C-203, San Diego, CA 92121, 619/457-2011. 1MB minimum memory; HFS only. $395.*

Silicon Press
Version 1.1. Silicon Beach Software, Inc., P.O. Box 261430, San Diego, CA 92126, 619/695-6956. 512K minimum memory. $79.95.

(continues)

The #1 Source for Macintosh Products — PC NETWORK

BUY HARDWARE AND SOFTWARE AT WHOLESALE +8% AND GET 14 TO 30 DAY SOFTWARE RENTALS†...

MODEMS



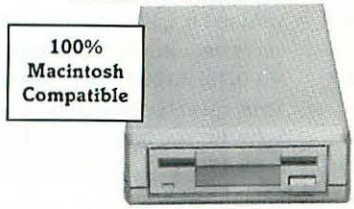
THE™ 1200 COM

1200 BPS External Modem w/auto answer, dial, re-dial and built-in speaker.

$119.00*

Anchor *Lightning 2400*	$309.00*
Hayes *Smartmodem 1200 Mac w/cable, Smartcom II*	417.00*
Hayes *Smartmodem 2400*	525.00*
Prometheus *Promodem 1200 w/Mac Pac*	269.00*
THE™ 2400 COMM *External Modem*	259.00*
U.S. Robotics *Courier 2400 BPS*	345.00*
U.S. Robotics *Password 1200 BPS*	172.00*

DISK DRIVES



PC Network 800K Drive

Works with 400K/800K Disks and Macintosh Upgrades

$185.00*

Apple *800KB Macintosh Disk Drive*	$283.95*
Apple *20MB SCSI Hard Disk*	924.00*
DC Systems *Easy Drive 20MB Mac Hard Disk*	650.00*
IOmega *Bernoulli Dual 10MB w/SCSI Interface*	1,700.00*
IOmega *Bernoulli Dual 20MB w/SCSI Interface*	2,199.00*
IOmega *Macnoulli 5MEG Cartridge Drive*	620.00*

MICROSOFT® Business Software



Mac Works

Write, Organize, Analyze and Chart One Program Does It All

$163.00*

Microsoft *Basic*	$75.00*
Microsoft *Chart*	62.50*
Microsoft *Excel*	197.50*
Microsoft *Multiplan or Word*	97.50*
Microsoft *File*	102.00*

PRINTERS



Imagewriter II

10" Carriage 250CPS/80COL 45CPS NLQ Color Capable

$419.00*

Apple *Imagewriter II Cut Sheet Feeder*	$149.00*
Apple *Laserwriter*	3,520.00*
Apple *15" Imagewriter for Mac*	475.00*
Epson *EX-800 300/60CPS 80COL Parallel/Serial*	440.00*
Epson *EX-1000 300/60CPS 132COL Parallel/Serial*	569.00*
Epson *FX-85 160/35CPS 10" Parallel*	329.00*
Epson *FX-286 200/40CPS 15" Parallel*	435.00*
Epson *LX-86 120/16CPS 8.5" Parallel*	205.00*

SOFTWARE



Print Shop

New for the Mac Write, Design and Print Cards, Letterheads and More

$24.75*

GAMES AND EDUCATIONAL SOFTWARE

Activision *Hacker, Mindshadow or Borrowed Time*	$22.50*
Electronic Arts *One On One or Skyfox*	26.97*
Infocom *Deadline or Suspended*	24.00*
Infocom *Zork I, Witness, Planetfall or Cutthroats*	20.00*
Infocom *Zork II, Zork III, Suspect, Infidel or Sorcerer*	21.50*
Infocom *Hitchhiker's Guide, Ballyhoo or Seastalker*	19.75*
Infocom *Trinity*	20.00*
Microsoft *Flight Simulator*	27.00*
Mindscape *A View to A Kill or The Mist*	21.00*
Mindscape *Rambo: First Blood, Pt. 2*	21.00*

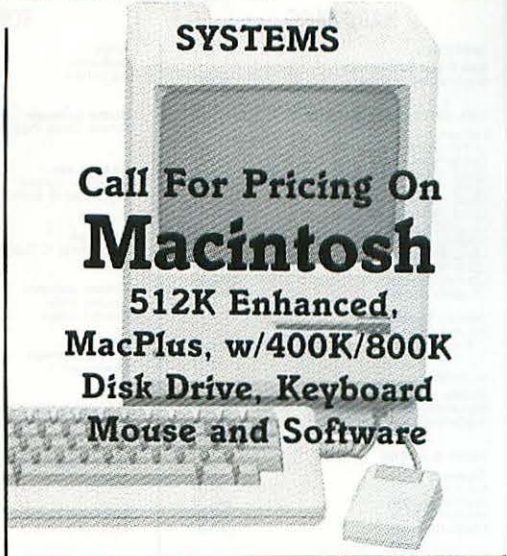
BUSINESS SOFTWARE

Ann Arbor *Full Paint*	$53.00*
Apple *MacTerminal or MacPascal*	77.00*
Ashton-Tate *DBase for the Mac*	291.00*
Blythe Software *Omnis 3 Plus*	265.00*
Borland *Reflex or Turbo Pascal for the Mac*	59.00*
Borland *SideKick for the Mac*	48.00*
Central Point *Copy II Mac*	20.00*
Hayes *Smartcom II*	78.00*
Layered Software *Front Desk*	65.00*
Living Videotext *More*	139.00*
Living Videotext *ThinkTank (512K Ver.)*	85.00*
Manhattan Graphics *ReadySetGo 512K*	98.00*
Monogram *Dollars and Sense*	71.99*
Software Publishing *PFS: File/Report Combination*	85.00*
True Basic, Inc. *TrueBASIC*	79.00*

†RENT BEFORE YOU BUY—Members are eligible to join the NETWORK's Business and Game Software Rental Libraries and evaluate products for a full 14 days (Regular Membership) or 30 days (VIP Membership) to see if they meet their needs. And the Network's rental charges are far less than other software rental services—Just 20% of the Member Wholesale Price. **Rental titles are available in IBM, Apple and Mac Formats.**

*All Prices in this Ad are Wholesale. Members Pay 8% Over Wholesale Plus Shipping. All Items are Subject to Availability. Prices Subject to Change Without Notice.

SYSTEMS



Call For Pricing On Macintosh

512K Enhanced, MacPlus, w/400K/800K Disk Drive, Keyboard Mouse and Software

DISKETTES

Guaranteed For Life!

Brand Name Diskettes Available in Boxes of 10

3.5" DS/DD

$16.95*

Free Flip 'n' File

CALL TOLL FREE (800) 621-SAVE

(Orders—Membership and Advice!)
In Illinois Call (312) 280-0002
Your Membership Validation Number **UU37**

You can validate your membership number and, if you wish, place your first money-saving order over the phone by using your VISA, MASTERCARD or AMERICAN EXPRESS
Our knowledgeable sales consultants are on duty Mon.-Fri. 8:00 AM to 7:00 PM Sat. 9:00 AM to 5:00 PM CST.

PERSONAL COMPUTER NETWORK
320 West Ohio Street
Chicago, Illinois 60610
Customer Service and Order Status (312) 280-1567

PC NETWORK MEMBERSHIP APPLICATION

YES! Please enroll me as a member in the PC NETWORK ™ and send my catalog featuring thousands of computer products, all at just 8% above DEALER WHOLESALE PRICES. I will also receive "THE PRINTOUT", a special quarterly update on merchandise at prices BELOW even those in my wholesale catalog and all the other exclusive, money-saving services available to Members. I am under no obligation to buy anything. My complete satisfaction is guaranteed.

Please (✓) all boxes that apply: **U37**

	1 Year	2 Year
•**Basic Membership**	$8 ☐	$15 ☐
With 14 Days Rental		
Business Software Rental Library	$25 ☐ add'l. per year	
Games Software Rental Library	$10 ☐ add'l. per year	

	1 Year	2 Year
•**Special V.I.P Membership**	$15 ☐	$25 ☐
With 30 Days Rental BOTH Business and Game Software Rental Libraries	$30 ☐ add'l. per year	

☐Bill My Credit Card: ☐VISA ☐MasterCard ☐American Express
Account Number: ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

Exp. Date ____ mon. ____ yr.

☐Check or Money Order Enclosed for $____

Name ____

Address ____ Apt. No. ____

City ____ State ____ Zip ____

Telephone ( ) ____

My Computer(s) is: ☐IBM PC ☐IBM XT ☐IBM AT ☐Apple II ☐Macintosh Other ____

Signature ____

(Signature required to validate membership)

Copyright© 1986, PC NETWORK, INC.

Members Get The Network Advantage...

CATALOG • NEWSLETTERS • 10 DAY RETURNS • BULLETIN BOARD • SOFTWARE RENTAL

(30,000 Items Listed) (Catalog Price Updates and Reviews) (No Questions Asked—If You Don't Like It, Return It—Hardware Only) (10,000 Free Programs to Download) (Over 1,000 Titles in our Library)

Circle 45 on reader service card

Sequoia mb
Better Business Bureau



Orders: 800-648-7171
Customer Service: (818) 793-7858

HARDWARE

DIGITIZERS
New Image Technology
Magic Video Digitizer 245.00

DISK DRIVES/TAPE BACKUP
LoDown
LD-T20 (20mb Tape Drive) call
LD-T50 (50mb Tape Drive) call
LD-20 (20mb Hard Disk) call
LD-30 (30mb Hard Disk) 1150.00
LD-40 (40mb Hard Disk) 1650.00
LD-60 (60mb Hard Disk) 1960.00
LD-20/20 Combo 1420.00
LD-20/50 Combo 1750.00
LD-30/20 Combo 1720.00
LD-30/50 Combo 1970.00
LD-40/20 Combo 2150.00
LD-40/50 Combo 2450.00
Western Computer
Big Mac Twin Pack (for MacPlus-20mb Hard Disk/20mb Tape Backup) call

MODEMS
Anchor Automation
Signalman Express 1200 230.00
Signalman Lightning 2400 350.00

PRINT BUFFERS
Ergotron
MacTilt 73.00
MacBuffer 256K 245.00
MacBuffer 512K 365.00
MacBuffer 1mb 565.00

SURGE PROTECTORS
PTI
S85 65.00
S100 75.00

SOFTWARE

Artsci
Softforms 25.00
Softletters 25.00

Blythe Software
Omnis Three Plus 278.00

Chang Labs
Inventory Control 228.00
Professional Billing 228.00

Consulair
Mac C/Mac C Tool Kit 255.00

Cricket Software
Cricket Draw 177.00
Cricket Graph 128.00

Green, Johnson
Spellswell 43.00

Manhattan Graphics
Ready Set Go (V 3.0) 165.00

Micro Planning Software
Micro Planner Plus 297.00

Mindwork Software
Mindwrite 87.50

Paragon Courseware
TechFonts
ElectroFonts 67.00
SciFonts 35.00

VISA
Sequoia mb
146 S. Michigan Ave. Suite 308
Pasadena, California 91106
Prices subject to change
MasterCard

Circle 641 on reader service card

THE ULTIMATE ERROR MESSAGE



Concern about the potential for accidental nuclear war through computer error is only part of the program of Computer Professionals for Social Responsibility. We're an organization of computer specialists committed to informing both policy-makers and the public about the appropriate uses and potential misuses of computer technology, in all settings.

We invite you to find out more about the work of our organization and our chapters around the country. To learn more, call our national office at (415) 322-3778.

COMPUTER PROFESSIONALS FOR SOCIAL RESPONSIBILITY
P.O. Box 717, Palo Alto, CA 94301

Where to Buy

Sizer & Adjacency
Version 1.7. Johnson & Johnson Design/Build, 677 Grove St., Newton, MA 02162, 617/253-5965. 128K minimum memory; two desk accessories require *MacDraw*. $69.*

Slide Show Magician
Version 1.3B. Magnum Software, 2115 Devonshire St. #337, Chatsworth, CA 91311, 818/700-0510. Key-disk copy protection. 512K minimum memory. $59.95.

SpellCheck
Version 2.3. Wolverine Software, 8200 Ridgepoint, Burr Ridge, IL 60521, 312/667-6195. 128K minimum memory; external drive recommended. $25.*

SuperPaint
Version 1.0. Silicon Beach Software, P.O. Box 261430, San Diego, CA 92126, 619/695-6956. 512K minimum memory. $99.

The Surgeon
Version 1.0. ISM, Inc., 2936 Paper Mill Rd., Phoenix, MD 21131, 301/666-2672. 512K minimum memory. $60.*

Switcher
Version 5.0. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014, 408/996-1010. 128K minimum memory; Mac Plus, external drive, or Hard Disk 20 recommended. $19.95.

3Server3
3Com, 1365 Shorebird Way, Mountain View, CA 94043, 415/960-9451, 800/638-3266. 512K minimum memory; requires AppleTalk and at least four Macs. $5995.

ThunderScan
Version 3.2. Thunderware, Inc., 21 Orinda Way, Orinda, CA 94563, 415/254-6581. 128K minimum memory; 512K or Mac Plus and printer recommended. 128K and 512K version $229, Mac Plus version $258.*

TimeLink
Version 2.0. Batteries Included, 30 Mural St., Richmond Hill, Ontario, Canada L4B 1B5, 416/881-9941, 800/387-5707. 128K minimum memory. $49.95; for update, send $10 and return disk.*

TOPS
Version September 11. Centram Systems West, Inc., 2560 Ninth St. #220, Berkeley, CA 94710, 415/549-5900. 512K minimum memory; requires AppleTalk and at least one hard disk. $149 per Mac; $389 per PC.

Typing Intrigue
Version 1.0. Forethought, Inc., 250 Sobrante Way, Sunnyvale, CA 94086, 408/737-7070, 800/622-9273. Also available from Micro Courseware Corp., 501 Second St. #414, San Francisco, CA 94107, 415/495-8810. Copying yields a demo version that limits typing session to 20 minutes. 128K minimum memory. $49.95.*

Typing Made Easy
Version 1.0. QED Information Sciences, Inc., P.O. Box 181, Wellesley, MA 02181, 617/237-5656, 800/343-4848. (Also distributed by Spinnaker Software; see next listing for address.) Not copyable. 128K minimum memory. $59.95.*

VideoWorks
Spinnaker Software, One Kendall Square, Cambridge, MA 02139, 617/494-1222. 128K minimum memory; 512K recommended; MFS only. $99.95.

Public domain software is available through on-line information services, through user groups such as Berkeley Macintosh User Group (415/849-2684) or the Boston Computer Society's Mac special-interest group (617/367-8080), or through mail-order clearinghouses such as Educomp, 2429 Oxford St., Cardiff-by-the-Sea, CA 92007, 619/942-3838 or SoftCore (formerly Public Domain Exchange), 673 Hermitage Ln., San Jose, CA 95134, 408/942-0309. □

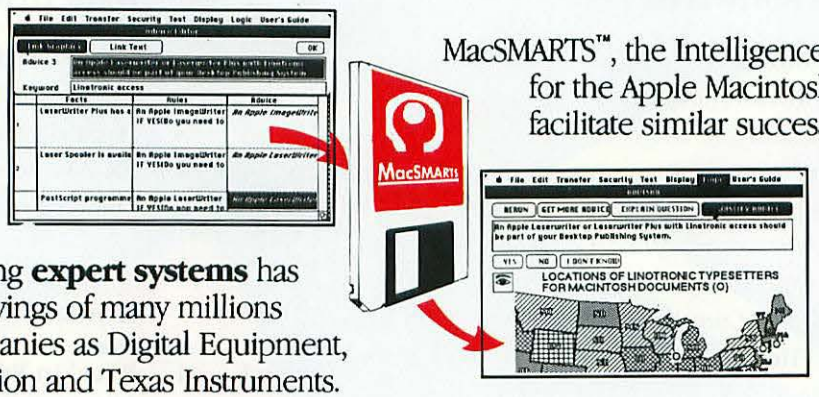
Knowledge + Inference = Intelligence

Step-By-Step Tutorial And Examples Included

MacSMARTS™

The Intelligence-Amplifying Software™

Knowledge is a strategic resource of individuals and of corporations. Properly managed the impact can be tremendous. The substantial investment in developing **expert systems** has paid off in corporate savings of many millions of dollars to such companies as Digital Equipment, Westinghouse Corporation and Texas Instruments.



MacSMARTS™, the Intelligence-Amplifying Software for the Apple Macintosh, was designed to facilitate similar successes in a wide range of businesses and professions using the new knowledge management techniques but with a much reduced investment.

EASY TO USE

The innovative Logic Worksheet of MacSMARTS is laid out like a spreadsheet, with columns for FACTS, RULES and ADVICE. In its operations, users of Excel, Jazz or other Macintosh spreadsheet processors will feel quite at home. You don't need to master a complex syntax just to get started. And with the click of a mouse and a menu selection you can link graphics and text to rules and advice to elaborate and inform with geological maps, engine diagrams, or architectural plans; key contract paragraphs, laboratory protocols or balance sheets.

PRODUCTIVE

By making it easy to construct a knowledge base—consisting of facts, rules and examples—in the Logic Worksheet you can use deductive and inductive inferencing techniques to diagnose and advise, design, plan or trouble-shoot.

Some typical applications include:

- **A partner in a major law firm** is using MacSMARTS to advise a junior associate on the finer points of corporate law.
- **A real estate developer** used a MacSMARTS program to make certain no considerations were missed in the decision to build a new office complex.
- **A medical laboratory director** found that a MacSMARTS program could assist new technicians in performing diagnostic tests.
- **A marketing director** will use a MacSMARTS program to configure the best components to meet a customer's requirements.
- **A financial consultant** saw that a MacSMARTS program could assist him in strategic portfolio planning for more clients.
- **An MIS director** uses a MacSMARTS program to assist programmers to track down problems in systems software.
- **A doctor** is using a MacSMARTS program to aalyze the implications of tests on his visually-impaired patients.
- The possibilities are bounded only by logic and human imagination. Our customer base spans two continents and a wide range of professions and businesses from individual consultants to the Fortune 500.

Technical Specifications and Features

- Prolog Inference engine
- Integrates both logical rules and examples
- Up to 4000 rules per knowledge base
- Up to 1000 examples per schematic rule
- Linkage of multiple knowledge bases
- Editor for easy revision of knowledge bases
- Context-sensitive help screens available at all times
- Import/export gateways
- Modular compilation of knowledge bases
- Password protection of sensitive knowledge
- Query-the-user facility linked to text and graphics files
- Works on hard disks for faster operation
- Compatible with HFS and the Macintosh Plus

AFFORDABLE

Artificial intelligence is one of the most significant developments in the history of computer technology. Now you can access the power of this new technology and put it to work with MacSMARTS. MacSMARTS has the features of programs costing hundreds or even thousands of dollars more yet costs only $149.95. As a limited introductory offer order MacSMARTS direct risk-free now for only $99.95. A small price to put you ahead of the competition and into the 21st Century. If MacSMARTS does not boost your personal productivity over the first 60 days, send it back for a full refund—no questions asked. We guarantee your satisfaction!

Meet us in San Francisco at MacWorld Expo Booth #843

Cognition Technology™

55 Wheeler Street, Cambridge, MA 02138

YES, I want to innovate today. Please send me MacSMARTS™!

MacSMARTS Not Copy-Protected Quantity: ____ @ $99.95 = ____

MA res. add $5.00 sales tax per copy = ____

60-Day Money-Back Guarantee

Shipping and Handling — Canada $ 5.00 per copy = ____ ; Other Countries $10.00 per copy = ____

Payment: ☐ Check ☐ Money Order ☐ MC ☐ VISA

Total Amount = ____

To order by Credit Card call toll-free (800) 255-5550, Ext. 354

Credit Card Expiration Date ____/____

Card # |_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|

Name ____ Signature ____

Title ____ Company ____

Shipping Address: ____

City: ____ State: ____ Zip: ____

Telephone: ____

CODs and Purchase Orders WILL NOT be accepted. **For the 512K Mac, MacXL and Macintosh Plus.**

Copyright ©1986 Cognition Technology Corporation
Apple is a registered trademark of; and Macintosh is a trademark licensed to Apple Computer, Inc. Jazz is a trademark of Lotus Development Corporation. MacSMARTS, the MacSMARTS icon, the Cognition Technology logo and Intelligence Amplifying Software are trademarks of Cognition Technology Corporation, 55 Wheeler Street, Cambridge, MA 02138, (617) 492-0246.

Circle 619 on reader service card

Macworld Best-Sellers

Business Software

Months on chart	Last month	This month	
21	1	1	**Microsoft Word** *Microsoft*
1	–	2	**Microsoft Works** *Microsoft*
13	2	3	**Microsoft Excel** *Microsoft*
9	5	4	**PageMaker** *Aldus*
5*	4	5	**MacWrite** *Apple Computer*
4	6	6	**FullPaint** *Ann Arbor Softworks*
5*	4	7	**MacPaint** *Apple Computer*
18	7	8	**MacDraw** *Apple Computer*
20	10	9	**Microsoft File** *Microsoft*
8	–	10	**Omnis 3** *Blyth Software*

Education Software

5	1	1	**Kids' Time** *Great Wave Software*
5	3	2	**Math Blaster** *Davidson and Associates*
1	–	3	**KidTalk** *First Byte*
4	–	4	**MacEdge II** *Think Educational Software*
5	4	5	**Typing Tutor III** *Simon and Schuster Computer Software*

Entertainment Software

5	1	1	**Flight Simulator** *Microsoft*
5	2	2	**MacGolf** *Practical Computer Applications*
1	–	3	**Grand Slam Tennis** *Infinity Software*
2	–	4	**The Ancient Art of War** *Broderbund Software*
1	–	5	**Dark Castle** *Silicon Beach*

Networking/Data Communications

5	1	1	**AppleTalk** *Apple Computer*
5	2	2	**MacServe** *Infosphere*
5	3	3	**Apple Personal Modem** *Apple Computer*
1	–	4	**TOPS** *Centram*
5	5	5	**Smartcom II** *Hayes Microcomputer Products*

Hard Disk Drives

Months on chart	Last month	This month	
4	1	1	**Apple Hard Disk 20** *Apple Computer*
1	–	2	**Apple Hard Disk 20SC** *Apple Computer*
5	3	3	**HyperDrive 20** *General Computer*
2	4	4	**FX-20** *General Computer*
5	2	5	**DataFrame 20** *SuperMac Technology*

Books

5	1	1	**Excel in Business** *Douglas Cobb, Microsoft Press*
4	3	2	**The Apple Macintosh Book** *Cary Lu, Microsoft Press*
1	–	3	**Microsoft BASIC Book/Macintosh Edition** *Walter A. Ettlin and Gregory Solberg, Osborne/McGraw-Hill*
5	4	4	**The Printed Word** *David A. Kater and Richard L. Kater, Microsoft Press*
5	5	5	**Microsoft Macinations** *Mitchell Waite, Robert Lafore, and Ira Lansing, Microsoft Press*

Product Watch

Editors' choice:
Other recent products of particular interest.

AppleShare *Apple Computer* file server software

InterMail *Internet* electronic mail program

SuperLaserSpool *SuperMac Software* spooling software

Source: Exclusive InfoCorp survey of more than one hundred Macintosh retailers and selected mail-order suppliers. Covers sales during November 1986.

**Formerly bundled with the Mac.*

"BULLET PROOF"

"Despite our best efforts to disrupt **MacServe**, we failed. **MacServe's** automatic crash recovery system was able to recover from the worst network disasters we could throw at it and never lost any data. We could reestablish network connections quickly and without any elaborate recovery procedures. This is a remarkable achievement for such a complex product with so many opportunities for data loss."

"We are impressed and can't imagine what more could be done to make **MacServe** bullet proof."

INFOWORLD
November 17, 1986

MacServe™

Information Sharing Without the Worry

That's what makes us the leader in AppleTalk solutions. Ask your Apple dealer for MacServe, LaserServe, and ComServe.

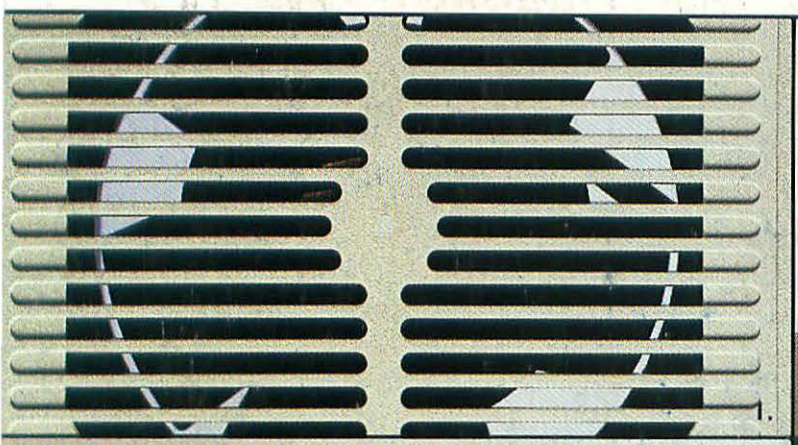
Ask your dealer about our MacServe System Rebate Offer!

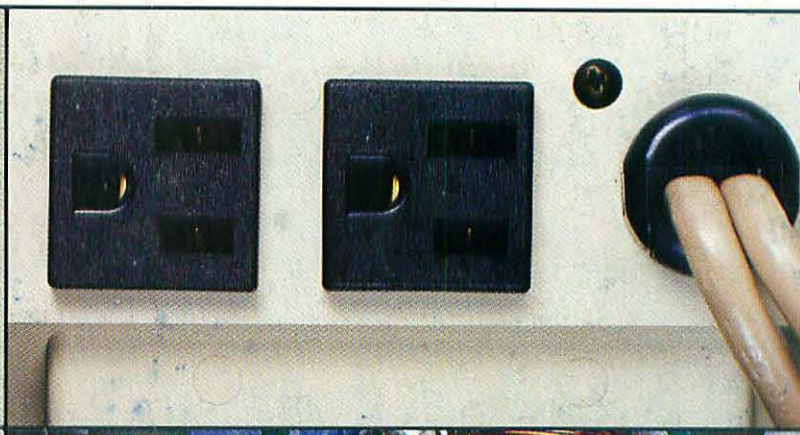
INFOSPHERE®

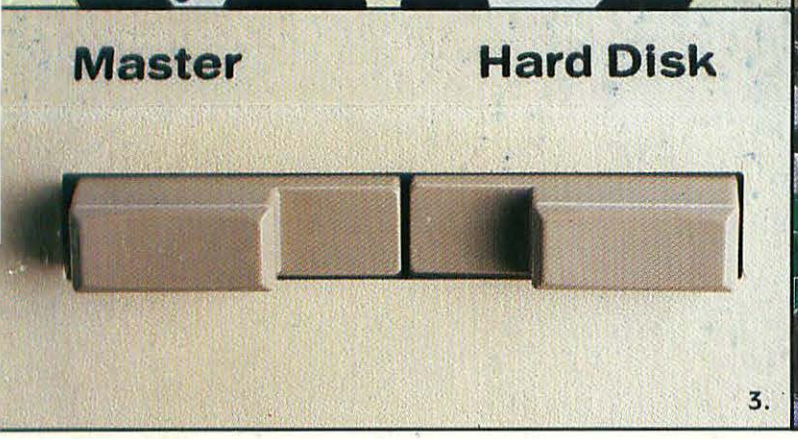
4730 SW Macadam Avenue
Portland, Oregon 97201
503 226-3620

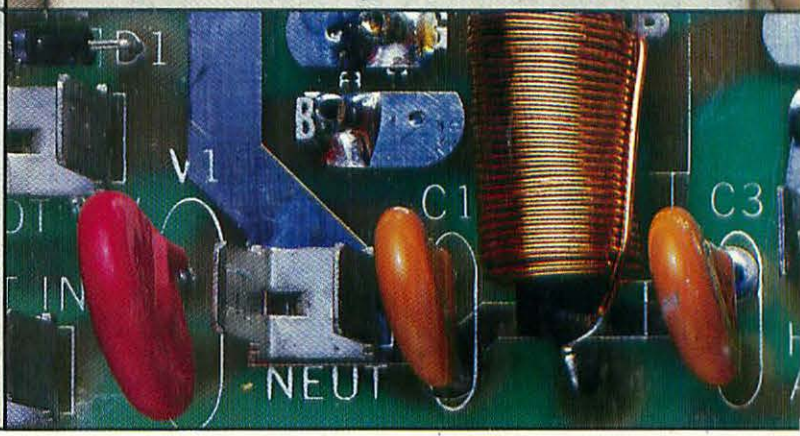
Circle 249 on reader service card

Four things no Mac should be without. All in System Saver® Mac.









That's right – four things. In one remarkable accessory. Take a good, close look at System Saver Mac. You'll find one hard-working accessory, skillfully engineered to perform four important functions at once.

(1) System Saver Mac keeps your Macintosh cool. Its quiet fan draws cool air through your Mac at the rate of 15-18 cubic feet per minute. **(2)** System Saver Mac stops the scramble for power. It provides outlets for two peripherals (like your printer and modem), while replacing the Mac's power cord. **(3)** System Saver Mac has a single or double switch option. It comes equipped with two switches, in case you want to power one of your peripherals (like a Hard Disk 20) separately. If you'd prefer the convenience of a single switch to control your entire system, just pop off the two separate switches and pop on the special single switch cap provided. **(4)** System Saver Mac provides pure power. It protects your Macintosh, clipping surges and spikes at a safe level and filtering out line noise to make your Macintosh more accurate, efficient and reliable.



Now, isn't that just the kind of remarkable product you've come to expect from Kensington? System Saver Mac, $99.95, is available at Apple dealers everywhere. For the dealer nearest you, or for a free brochure of all Kensington's Apple accessories, call toll-free 800-535-4242. In NY, 212-475-5200.

KENSINGTON™

Circle 11 on reader service card

© 1986 Kensington Microware Ltd.